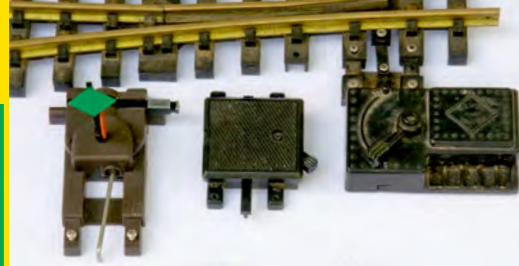


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Adventures in outdoor model railroading

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3RD PLACE WINNER:**
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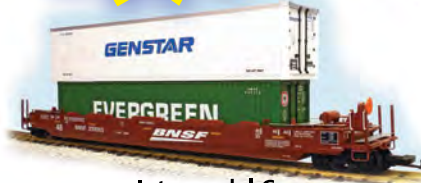
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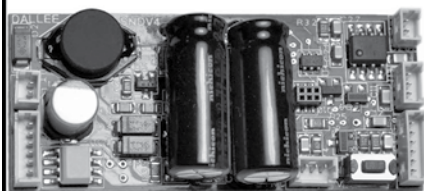
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GR's small-railway contest

Our Small Garden Railway Contest closed last July. We received a total of 15 entries (compared to 35 in our 2011 contest). As always, we appreciate the efforts of those who chose to enter the contest. Writing a full-blown story about your railroad, complete with plant list, plenty of photos, and a trackplan, is no mean feat. It takes planning, time, and effort, to say nothing of the additional time and work required to get the railroad in good shape for the photos. We extend our thanks to all of those who entered.

For the first time, several raised railways were submitted, some without any plant material, or plants in pots set into the benchwork. This is interesting and, I suppose, reflects the aging demographic of today's garden railroaders. We are seeing more and more people converting their railways to plans that are more accessible. Some of these we have already featured in the magazine and more will be included in the future.

Judging was more difficult this time, as there were no clear winners. The quality of both the railways and the articles was generally high, which added to the difficulty. Judging was done by assigning points (up to five) in a variety of different categories. These categories included things like creativity, execution, landscaping, trackplan, theme or concept, photo quality, etc. If entries were weak in one area, they were usually strong in others.

When the points were totted up there were several that were grouped around the top numbers. This is where the more subjective part of the judging came in—trying to determine which railways most closely embodied the spirit of the contest. Again, it was close, but the winners were: First place, Bill Ralph of Fremont, California; Second Place, David Hiebert of Vancouver, British Columbia; and Third Place, Kyle Post of Dearborn, Michigan. Kyle's railroad is featured in this issue; the two other winners will follow in subsequent issues.

Because the contest was so close this time, we will also be featuring some of the runners up in future issues of *Garden Railways*. There were several creative railways that I know readers will enjoy seeing, so stay tuned.

And finally, I'd like to take this opportunity to wish garden railroaders everywhere a happy, healthy, and safe New Year. May it bring good things to all of us!

Marc



PHOTO BY ETZEL WILLHOIT

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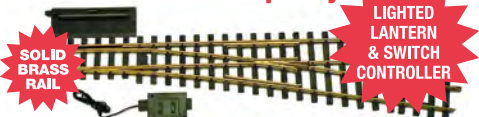


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Bachmann Trains, 1400 East Erie Avenue, Philadelphia PA 19124, has added two new tank cars—Zerolene (#93401) and Conoco (#93402)—to its lineup of large-scale tankers. These cars feature metal wheels and prototypical details. Price: \$110 each. Website: www.bachmanntrains.com



Ozark Miniatures, 3461 S 5225 W, Cedar City UT 84720, has released a new series of wood water/oil/pickle cars in 1:20.3 scale. The first, a 10' tub car, is a freelance kit based on the first bulk cars invented by Amos and James Densmore in 1865. The kit is simple to build and includes link-and-pin couplers, steel wheels, pre-cut wood, and all hardware. Website: www.ozarkminiatures.com

Bridges & structures

Precision Products, 3461 S 5225 W, Cedar City UT 84720, has released a new series of easy-to-build ½"-scale building kits. The kits are laser cut from aircraft

plywood. The siding is engraved on them. All doors and windows are made of wood and are prebuilt. Assembly is via tabbed construction. Website: www.AIII.info

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Stoneworks, PO Box 684, Monett MO 65708, has a new Route 66 Gas Station Six-Pane Window Kit (#4271) in 1:24 scale. The kit contains laser-cut pieces of ¼" white styrene and acrylic window panes. Size is 3" wide x 3.9" high. Price: \$4. Website: www.RRStoneworks.com



b2bReplicas has a variety of new die-cast models of modern agricultural equipment in 1:32 scale. Included is a model of a New Holland T7.225 tractor (#4893). The model features free-rolling wheels, diecast construction with plastic parts, detailed operator's cab, authentic tire tread, and detailed lights and mirrors. Price: \$59. Visit the company's website for complete information on all of the new products: www.b2bReplicas.com

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Electronics

G-Scale Graphics, 4118 Clayton Ct., Fort Collins CO 80525, has a new Long Range Transmitter for its RailBoss 4 control systems, which features a range up to 800 feet, twice that of the Standard Transmitter. The transmitter is available for both RailBoss 4 and TrackSide R/C. Price: \$114. The company is also bringing back its Enhanced Critter Control, a semi-automatic controller for battery power that features automated station stops and back-and-forth trolley operation. Price: \$91.50. Website: www.GScaleGraphics.net



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30-year-old garden railway



In 2015, my garden railroad, the Mount Behmer & Southern RR, celebrated 30 years. Back in early 1985 I started buying gauge-1 material to build a garden railway and I laid the first track in May of that year. It was first supposed to be a Swiss line but I hesitated because modern Swiss railways require overhead wiring to look real. This is not only costly but also high maintenance. I have always had a special interest in US history and its railroads, so the appearance of LGB's Mogul quickly changed my mind to build my railroad the American way, a decision I absolutely don't regret!

Since my railway was featured in *Garden Railways* (February 1997), the basic line is still the same but it has expanded. The picture is of Mount Behmer City. The mainline has been extended to circle a pond close to the patio, railroad-facilities have been changed and improved, and, due to a business trip I had in March 2012 to the New York area, I added diesels to my roster and modern trains to my line. While sitting in the car, driving toward New York City, I saw two Norfolk Southern engines (GP-38s) running light. I loved the way they looked, with their horsehead logo. I got hooked, so my roster now includes Norfolk Southern diesels, in addition to my still-favorite narrow-gauge line, the DSP&PRR.

I would like the opportunity to thank the *GR* team and every author in your magazine for the fantastic articles in every issue. It is great, sharing the hobby

and experience with everybody, and many of the authors have inspired me. — *Ralph Gasser, Birmensdorf, Switzerland*

Editorial picture

I was interested to see the picture of the editor in the December issue, sitting in the cab of Union Pacific's Big Boy N° 4014. In 1951 I put that locomotive in the ditch, on the Creston Hill. I was working the engineers' extra board out of Rawlins, Wyoming. I was called at 4:30 a.m. for the drag, with the N° 4014. The Laramie crew had brought it in with a two-foot clinker in the firebox. Four hours later, at 8:30, we were ready to leave town. The conductor told me we had 116 cars. I had checked the sand boxes and they were full—I would need that. In those days the rear brakeman and the conductor inspected both sides of the train.

The conductor gave me the high ball and I opened the throttle a little to take up the slack, then opened it wide. Even with full sand, the front engine was slipping and I had to drop the throttle a little. In our orders was a 40 mph order over the hump and down through Dailey's Basin. We barely made 40. For the next four miles it was a two per cent grade up. We were still doing about 20. Into Cherokee, it faded to about 15.

One mile above Cherokee was where it happened. The number-one set of drivers started to slip. Before I could shut it off, the right number-one driving wheel threw a tire, which cleaned the right side

of the engine and came to rest about 30 yards up the hill! The head brakeman, the fireman, and I hit the deck—we thought that tire was coming in! They had to send to Cheyenne for the big crane. Green River's hook wasn't big enough. They took the crew back to Rawlins in a carryall. It's funny how you can remember events from 50 years ago. I worked for the Union Pacific as an engineer for 41 years. — *John Whitehead* 🐉

If you have something to say, send your comments to "Letters," c/o *Garden Railways*, PO Box 460222, Denver CO 80246 USA; or e-mail to mhorovitz@gardenrailways.com

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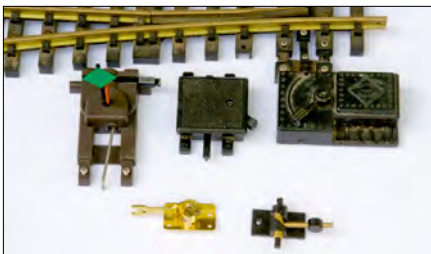


GARDEN RAILWAY BASICS

Bending the iron, part 1: Manual switch throws



The engineer waits patiently while the brakeman throws the switch at Neelyton so “Dinky” No. 2 can continue on its way. Manual switch throws are a great way to interact physically with your railroad, as you move trains onto the desired tracks. PHOTOS BY THE AUTHOR



1. Ground throws. Back row, L-R: Bachmann (rigid), LGB (sprung), Aristo-Craft (sprung). Front row: Sunset Valley (rigid), Tenmille (rigid).



2. Switchstands (L-R) Sidestreet Banner-works (out of production), Sunset Valley, Ozark Miniatures.

The term “bending the iron” refers to throwing switches on the railroad to change tracks. It stems from the early days of stub switches, where, when the brakeman threw a switch, he literally bent the rails so that they lined up with one route or the other. The means of throwing switches on the prototype range from simple levers attached to the throwbar of the switch to complex systems of levers and rods operated from a central switch tower, to

automated machines controlled remotely from command centers miles away.

When it comes time to bend the iron on our garden railroads, we have a surprisingly similar array of options for controlling our switches. At the most basic level, there are simple manual switch throws that connect to the throwbar. Various means of mechanical linkages, as well as electric and pneumatic systems, are available for throwing switches remotely. In this column and the next I’ll

describe our options. This time I’ll focus on the manual throws. In the next issue I’ll look at various remote means of operating switches.

Let’s establish some terminology related to switch-throw devices, however they’re powered. There are three types; **rigid**, **spring**, and **rubber**. A **rigid** throw moves the points against the stock rail and firmly holds them there. If a train were to come through opposite the way the points are set, it would derail because the points would not move. However, there are instances on a railroad where you would want the points to move when a train comes through the opposite way. That’s where the **spring** switch comes into play. A **spring** switch holds the points against the stock rail but the mechanism doing so has a built-in spring, allowing the throw bar to move as the wheels push the points over. Once the wheels pass through, the points return to their original position. Reverse loops and passing sidings are typical places where you may want a **spring** switch, so that a train can pass through without you having to remember to throw the switch. A **rubber** switch is a spring switch that stays in its new position, as opposed to returning to its original position.

Switch-throw devices for garden railroads come in many forms. Commercial ones range in size and prototypical fidelity (photos 1 and 2). Some are scale models of prototypical switchstands, some are loosely based on their operation, and some bear no resemblance at all to the prototype but serve their purpose. Function should always come before form.

Considerations

There are a few things to keep in mind when choosing a throw device for your switches. The first, of course, is whether you want your switch points to be sprung or rigid. You can use rigid throws in sprung applications but you can’t use a



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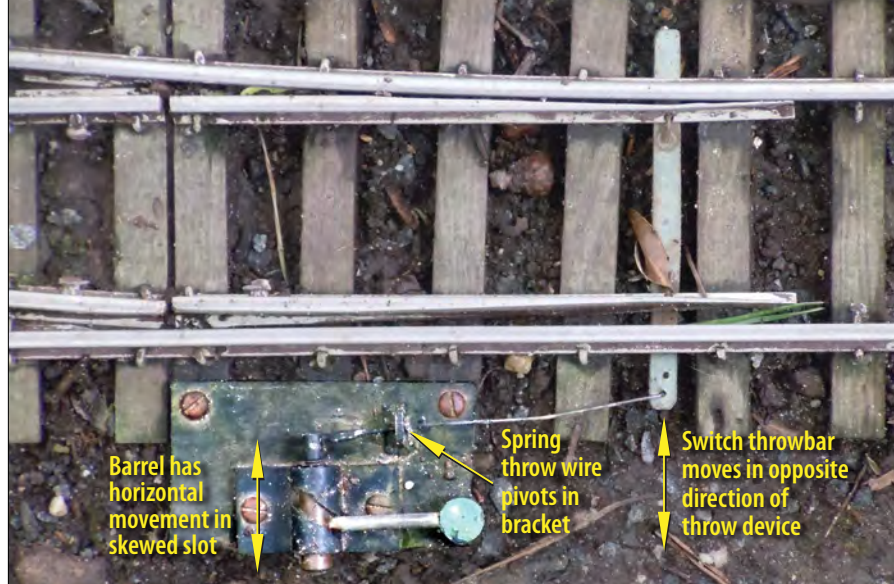
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direct linkage to the throwbar; you must use a lever that has some degree of springiness to it between the throw mechanism on the switch throw and the throwbar on the points (**photo 3**).

The switch-throw mechanism has to have enough throw to move the points the full distance. Some are adjustable, while others are not (**photo 4**). If a throw has more travel than the switch points, it's common practice to put a U-shaped bend in the linkage between the throw mechanism and the throwbar to take up the overage (**photo 5**). If a throw does not have sufficient travel for a direct linkage, you can always use a lever arm to increase the throw distance, as shown in **photo 3**.

The last consideration has little to do with the mechanism itself but everything to do with how well they'll work, and that is the environment in which they're going to be mounted. Some switch throws stick up from the ground a fair amount so you've got to be careful about where and how they're mounted. They must be mounted far enough from the track that the trains won't hit them as they pass. Also, anything that sticks up from the ground will invariably catch garden hoses, electrical cords, and other things you drag around the railroad for maintenance (to say nothing of your own feet). Lower-profile ground throws are less prone to be tripped over but must still be mounted far enough from the track to clear low-hanging objects on the passing trains.

You don't actually need a physical switch-throw device at all to move the points. Perhaps the simplest and least obtrusive switch throw is what's called an **over-center spring**, or a **V-spring**, (derived from its shape—**photo 6**). The operational premise is that there is a hole drilled at a pivot point on the tie adjacent to the throw bar, and another drilled into the throw bar itself. The two ends of the V-spring fit into those two holes. The spring is in compression, so it holds the points against the stock rail. As the throw bar moves from one side to the other, the spring compresses tighter as it moves past the pivot point, then relaxes on the other side (past the center, or "over" center) and holds the points against the opposite stock rail. The strength of the spring deter-



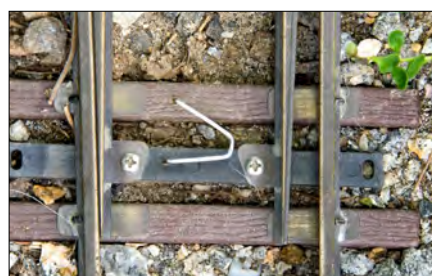
3. Using a spring-wire lever to connect a rigid throw to the throwbar creates a spring-switch mechanism.



4. Some switch machines allow you a certain level of control over the throw. On the left, multiple holes at increasing distances from the pivot point allow you to select the one that gives you the optimal throw. On the right, the throw mechanism can be adjusted via a screw to tailor the amount of throw to the specific switch.



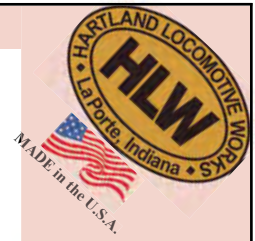
5. A U-shaped bend or a loop can be integrated into the throw rod to compensate for slight differences in throw distances between the switch and machine. Note that these generally do not provide sufficient play to create a spring-type mechanism.



6. V-spring switch throws (also called over-center throws) are simple in operation. The spring is under compression, so whether it's thrown left or right, it will hold the throw bar in place.

mines the force with which the points are held against the stock rail. A weak spring will provide just enough force to hold things in place but still allow things like (lightweight) pilot wheels to pass through without derailing. This would be an example of a **rubber** throw. If the spring is very strong, it may end up being more of a rigid-type throw, as wheels may not be able to push against the force of the spring without derailing. Until this past summer, all the switch throws on my railroad were of this type.

I recently finished installing Bachmann's new manual switch throws on most of my switches. I won't say this was born of necessity, because the V-springs have worked reliably for me for 10 years. However, I have this nagging sense of aesthetic realism. After playing briefly with the Bachmann switch throw with a lower East Broad Top-style switch target, I decided that it would add more credibility to the scenes on my railroad. The targets (I hope) will not stick up high enough to get tripped over.



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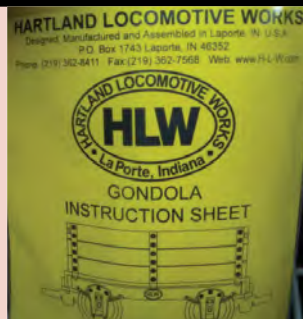


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7. Many commercial switches come with tie moldings ready to accept commercial switch machines.



9b. The location of the switch machine on the ties was set by positioning both the throw bar on the switch and the switch machine in the mid point of their travel. This ensures the pressure will be equal when holding the switch points in either position.

Installation

Installing these manual (or any) switch throws ranges from dead-nuts simple to moderately painless. If you're using a switch throw from LGB, Bachmann, Aristo-Craft, etc. on a switch from LGB, Bachmann, Aristo-Craft, etc., you'll usually find mounting holes already in the ties near the throw bar to accept the switch machine. For the most part, the geometry of the ties is such that these machines can be retro-fitted to other manufacturers' switches with minimal effort. In these cases, the throw bar on the points will usually line up with the bar on the switch machine, and you're good to go. Typically these throws have sufficient movement and enough play that you can connect the throw bar directly to the switch-throw mechanism without the need for special linkages (**photo 7**).

Other switch throws will require extensions to the switch ties in order to mount them. When mounting these, the



8. If the ties of the switch don't lend themselves to direct mounting of the switch machines, plates can be made from metal or plastic upon which the throws can be mounted.



9c. The finished switch machine with the scratchbuilt target installed.

hardest part will be placing them the correct distance from the points so that the points move from position to position with equal pressure. There are two approaches you can take to this. You can mount the machine to the ties, or to an extension mounted to the ties, then bend a loop in the linkage wire between the throw and the throw bar to adjust for the precise distance (**photo 8**). However, on the Bachmann switch throws I installed on my railroad, the linkage between the switch throw and throw bar was a set distance and could not really be tweaked once in place. For these, I set the points to mid-travel, then set the switch throw to mid-travel. With the points and the throw both in mid position, I marked and attached the throw to the ties, giving me equal throw on either side of center, resulting in the switch points moving the full distance with the right amount of movement to hold things firmly against the stock rail (**photos 9a-c**).

There's also no reason you can't make your own switch machines to suit your



9a. Mounting Bachmann switch throws to Sunset Valley switches on the author's railroad. The ends of the Bachmann throw were cut off so they would fit over the Sunset Valley ties, while the ends of the ties on the switch were cut to the appropriate length so that the throw rod on the machine would reach the throw rod on the switch.



10. There's always the do-it-yourself approach to building switch machines, such as these simple throws, built up from lengths of brass wire on Jim Strong's Woodland Railway.

own purposes (**photo 10**). There have been articles written about a number of do-it-yourself devices, ranging from cabinet latches to barrel bolts. Whatever flavor of switch throw you ultimately use on your railroad (and there's no harm in using multiple varieties—the prototypes sure did!), there's something distinctly cool about getting your hands on the switch throw and actually moving the points to the right position. On my railroad, the switch targets perform the same function they do on the prototype, giving me visual feedback as to which way the switch is thrown, which removes some of the guesswork when looking down the track to see if your train will go where you think it will (an important consideration when one has kids who like to throw the switches, unbeknownst to you). **▲**

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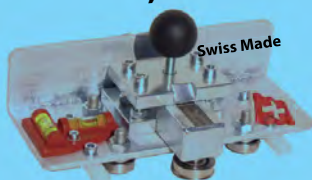
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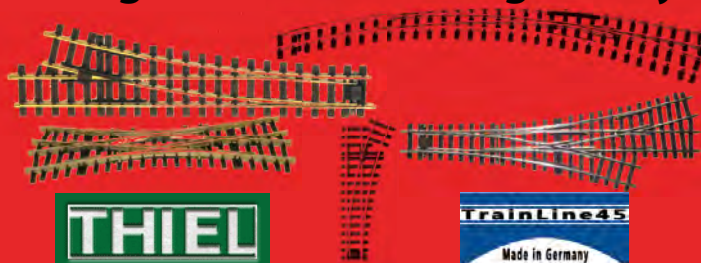
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GREENING YOUR RAILWAY

The greenhouse effect

Glass houses invite us to visually “come on in.” Based on the following examples, you can model a style that will determine its location in your railway. If it’s a conservatory, place it in a park or by a nice home. A Quonset usually suggests a commercial enterprise. A small hobby kit goes near a house. In **photo 1**, we’re introduced to a newly unveiled piece of rolling stock: the traveling terrarium. Actually, it’s not such a novel idea—Romans built the first gardens on wheels in 30 AD, when they wheeled planter boxes of healthful cucumber-like plants outside to get some sun.

Education, entertainment, and eats

Italians also built the first modern greenhouses, when manufactured glass became readily available. They called them orange-ries, and built them for growing the popular citrus fruit, which needs heat. If there’s one thing that glass houses have taught us, it is that temperatures rise under glass or similar situations where sun rays penetrate the roof, heat up the contents, and hold much of the heat inside.

During Queen Victoria’s reign (mid 1800s), Englishmen used shipbuilders’ designs to erect spectacular glass conservatories with curved roofs, much like the Conservatory of Flowers in San Francisco (**photo 2**). These enormous greenhouses continue to amaze visitors and show them a glimpse of the tropics or other habitats from around the world.

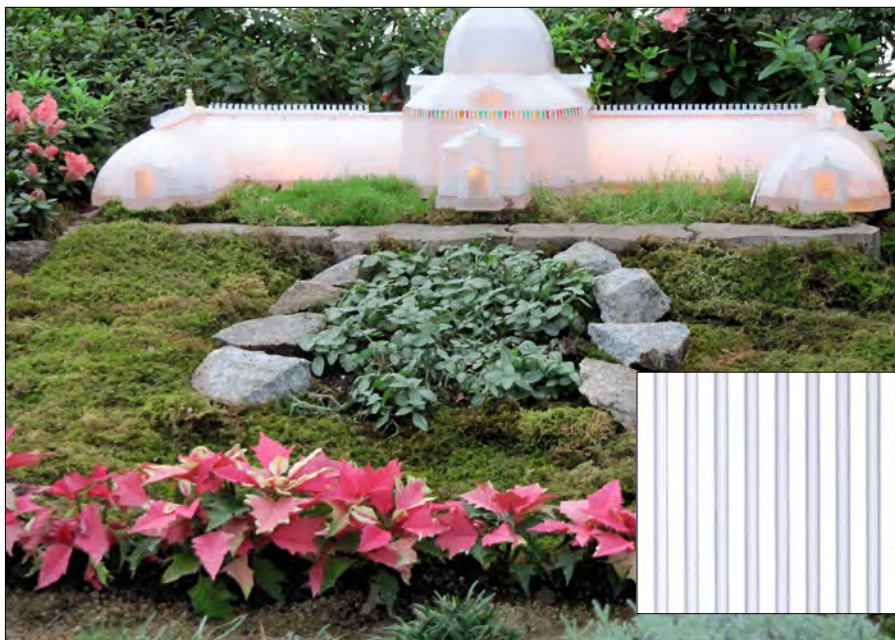
It was at our local University of California Botanical Gardens that I learned about the Southeast Asian “corpse flower”—almost my size (inside the doorway in **photo 4**). In that photo, I show that some flowers can be quite large, albeit unusual. In modeling greenhouses, whether for nurseries that start seedlings or conservatories that grow tropical plants, we railroad gardeners may want to choose larger plants to sustain the retained heat under glass because larger plants *can* be prototypical.

Continued on page 23



PHOTOS BY THE AUTHOR EXCEPT WHERE NOTED

1. Working late. Lake Phillips’ traveling terrarium was commissioned by the author for her $\frac{7}{8}$ "-scale agricultural railway. The greenhouse element is a Tumdee kit (see “Sources” sidebar), glued and pin-nailed onto a scratchbuilt flatcar, including custom LED lighting. Air plants (*Tillandsia* sp., Zones 9-11) inside and in the boxes bring it to life. When not running behind live-steam trains, it’s displayed inside near bright light from a 1:1 greenhouse window. LAKE PHILLIPS



2. A garden railway was set up in one wing of the San Francisco Conservatory of Flowers every winter for several years. The unknown builder of its miniature replica used a translucent covering and installed soft lighting within it. Double-walled Plastruct (inset) comes in transparent, translucent, or opaque colors and would make durable scale sheathing.



3. Garden-accessory and outdoor-décor shops usually offer attractive terrariums for displaying plants. Keep them in shady spots to prevent your plants from cooking.



4. This white conservatory used to be a birdcage. It was found at an antique store by Jeannie Deasy, who runs large-scale trains on the Diablo Pacific Short Line modular railway. Superimposed in the doorway, the author visited with a corpse flower from Sumatra, "Trudy," a rather large titan arum (*Amorphophallus titanum*) collected by the UC Berkeley Botanical Garden. See Trudy before her skirt-like spathe started to decompose at <http://botanicalgarden.berkeley.edu/titan-arum/> UCBG DIRECTOR PAUL LICHT

REGIONAL GARDENING REPORT Zones listed are USDA Hardiness Zones

How have you modeled a scale greenhouse?

Jack Verducci
San Mateo, California, Zone 9-10
Showcasing succulents

I bought the glass house from a curio shop. I think it was meant to be a display case for miniatures. I modified it by cutting out the glass panes at the roof ridge to allow for ventilation. I used a glass-cutting tool and a Dremel-cutting wheel. It was difficult and I did create some cracks but figure real greenhouses have cracks too. It



Jack's elegant leaded-glass greenhouse exemplifies a Victorian-style conservatory, replete with curved roof and finials. Jack placed his greenhouse on a concrete-board base and accessorized it—even a potting bench and wood stove. Clearly, the furnishings are quite visible. JACK VERDUCCI

still gets pretty hot in there in the summer. The glass house is removable so it can be lifted off when the weather is hot. Benches are removable to make planting easier.

Bob Evans
Lafayette, California, Zone 9
Craft kit

I bought our greenhouse from a club member who was liquidating his collection of buildings. The kit greenhouse was in some disrepair so I put it back together with glue. I went to Michaels craft store and found miniature pots that seemed to



Jack glued the pots to the bench with silicone and drilled a hole through each pot and the bench. This allows for drainage but, most importantly, it is helpful when planting. Plants are mostly stonecrops, including dwarf Spanish sedum (*Sedum hispanicum*, Zones 5-9). JACK VERDUCCI



Bob's realistic commercial-style greenhouse appears to be doing a good business. NANCY NORRIS

be in scale. Michaels also had miniature artificial flowers. I had to cut down the stalks, but I filled the pots with silicone sealer and stuck the flowers in them, then glued the pots to the tops of the tables in the greenhouse. I added a few accessories (like a watering can and bug sprayer). The irony is that I think I paid \$5-10 for the structure but ended up spending over \$70 on the pots and flowers.

David Dawson and Bob Brook
York, United Kingdom, Zone 9a
Poppleton Community Railway Nursery

We are a volunteer group that was formed to try to take over the last English railway nursery for community use, while preserving its historic features, including the



5. Chris and Nola Greenwald left off the walls and created a well-lit waiting platform so we can see the scale figures about to board their Grunenwald Berg Bahn. Metal filigree lines the roof ridge above the stained glass mounted on welded-steel columns.



6. Rich and Ed Abate needed a “working” greenhouse next to their beautifully scratchbuilt Arlington Hotel to supply the flower baskets that hang above the porch. Yellow paint enhances this sunny scene on their Rooster Creek Railroad.

railway. After many problems, this was achieved in 2009, and the job of restoration and growing plants has carried on since then by what has become a registered charity.

History. English railways in the 20th century encouraged station staff to look after their stations, including beautiful flower displays. Most ran competitions for the best-kept station. To provide plants for displays, railway companies ran their own nurseries. One such nursery was situated in the city of York and run by the London and North Eastern Railway. In 1941 the land in York was required for the war effort and the nursery was moved three miles to the village station at Poppleton, where land was available. During the war, most of the nursery was used for growing vegetables for the railway hotel and refreshment room in York. After the war, it gradually changed to growing plants for stations and for landscaping schemes, and also for displays for special events, like Royal visits and locomotive namings. The turmoil of British railway privatization in the 1990s led to a gradual run down, then (temporary) closing in 2006; it was the last railway nursery to survive.



Built on site in the 1980s, a 2' narrow-gauge railway still helps move plants and pots between greenhouses at the last of the railway nurseries. The railway sees regular use for pushing materials around the site, with the powered vehicles being used occasionally. Here a Lister “Lowco” runs next to a large-scale layout that promotes horticultural therapy as well as railway gardens. BOB BROOK

Modeling. Volunteers take a model to shows to publicize the nursery. Track was handmade from bits available (see the website sidebar on p. 23). Buildings were put together to give the impression of the nursery, using materials on hand, including the main greenhouse. This is made of clear acrylic sheet glued into the main shape, with the framing then glued on using thin strips of white plastic. A detailed model of the engine shed, a hidden siding concealed in a



PCRN volunteers David and Bob built a small model railway to publicize the nursery and to provide an attraction on open days. This was built on an old door to the scale of 16mm to the foot, running on 0-gauge (32mm) track, a common scale for English garden railways. Real plants, like dwarf conifers, hebes, and sempervivums from the nursery, get inserted into holes for events. The pit house on the right grows cucumbers (as per the prototype). DAVID DAWSON

model of our old potting shed, and our sunken greenhouse complete the scene. One of the features that seems to amuse the public is a hand-pushed skip [garden-waste container] wired as a shuttle, which runs backwards and forwards into the greenhouse.

Visiting. We welcome visitors to the nursery but prefer people to come on our open days. Details can be found on our website: www.poppletonrailwaynursery.co.uk

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Midnight Sun in Sweden and Norway (inclusive Hurtigruten cruise) – July 2016

This tour will start in Stockholm. First, we will travel with the famous Inland Railway through Sweden's untouched wilderness, along beautiful lakes and amazing glaciers. The journey starts through Lapland, further across the Arctic Circle and to the Atlantic coast. Afterwards, we will take a cruise with the famous Hurtigruten and travel through the spectacular scenery of the Norwegian coastline with more than 1,000 islands to Bergen. Next, a special fjord cruise will take us from Bergen to Flam, passing through the Sognefjord and proceeding up the dramatic Aurlandsfjord. Another highlight will be a fjord cruise of the amazingly beautiful Nærøfjord. At the end of our tour we will ride the famous Flåm Railway and Bergen Railway to Oslo, where the tour ends.

Steam train tour Northern Germany – August 2016

The tour will start and end in Hamburg, where we will visit the Miniature Wonderland and enjoy an Elbe River cruise. We will continue to Bruchhausen-Vilsen to join the 50th anniversary festival of the Deutsche Eisenbahn Verein. The program includes fantastic steam train excursions. Next, we will visit Wernigerode, a colorful town with magnificent half-timbered houses. The steam powered Harzer Schmalspurbahn and the Brocken Bahn will take us through the beautiful scenery of the Harz Mountains. The trip continues to Berlin, where we will visit the German Museum of Technology. Then we will visit Ruegen, Germany's largest island, where we will stay at the beautiful seaside resort of Binz. Highlights will be exciting train rides on board the famous steam powered "Rasender Roland" and the "Mollibahn" in Bad Doberan.

Train Safari South Africa, Botswana & Zimbabwe – September/October 2016

We will spend the first days to explore Cape Town and to ride our first steam train on board the Atlantic Rail. Then, we will continue along the Garden Route over spectacular passes to Oudtshoorn and to the beautiful beach town of Knysna, where we will visit the famous Elephant Park. Next, we will travel to George to visit the historical Outeniqua Choo Tjoe steam train museum and nearby Johannesburg, we will visit the only operating locomotive shop of South Africa. Then the highlight of the tour begins: A train safari on board Rovos Rail, one of the world's most luxurious trains. The journey takes us from South Africa to Botswana and Zimbabwe. On our way we will explore Hwange Nationalpark, one of the largest nature reserves of Zimbabwe. The tour continues to Victoria Falls, one of the Seven Natural Wonders of the World. We will spend two days at Victoria Falls to enjoy this awesome scenery.



Photos by courtesy of Hurtigruten and Rovos Rail.

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7. The Bay Area Garden Railway Society's outreach trailer, the Roving Garden Railroad, displays an uncovered hobby greenhouse with a floor of tiles to raise the plants within view. Living months or longer in a variety of bonsai pots, the fluid-filled sedums, sempervivums, and peanut cacti are watered infrequently.

Continued from page 19

Size also doesn't matter much in the realm of greenhouse structures. We see small and large 1:1-scale greenhouses. The door is the key to showing the scale but there are ways to get around that issue, too. If it's too big, sink the greenhouse into the ground a bit and call it a "pit house," often built to prevent frost from killing plants.

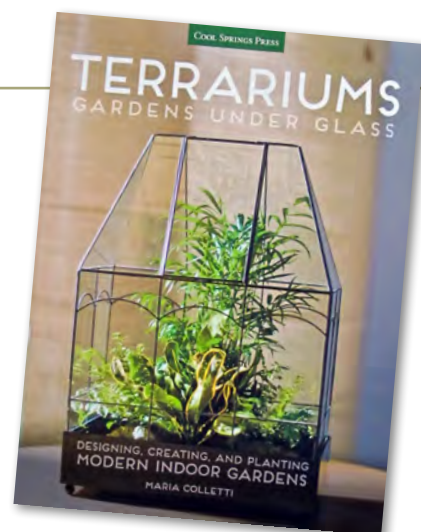
Ways to glaze

You can glaze your greenhouse with an

assortment of materials. The obvious advantage of a glass house is seeing all of the interior details (**photo 5**). Some plastics are quite transparent, too (**photo 1**). All glazing gets spotted by salts from hard water and dirt (it's a garden).

If you don't want to clean the glass [or maintain plants and details inside, translucent plastic "1:24 Scale Corrugated Siding Patterned Plastic Sheets" from Plastruct appear to be similar to the glazing in **photo 2**, but stiffer.

It's not uncommon for nursery and




8. Find inspiration and education in Maria Colletti's 176-page paperback. Follow her steps to make your indoor-plant terrarium or outdoor Wardian-case greenhouse, as on the cover of *Terrariums: gardens under glass*. Cool Springs Press, 2015.

greenhouse owners to uncover their hot houses in the summer, then re-glaze them in the fall with plastic sheeting. Modeling this situation permits us to show off the plants better (**photo 6**). No glazing = no greenhouse effect + no dirty roof.

Plants alive

Succulents, like stonecrop and hen-and-chicks, are great because they retain water and take the heat, but they aren't the only smart choice for little hothouses. See "Plant portraits" to learn about air plants.

Scale greenhouses and conservatory-like "Wardian cases" (**photo 8**) are sometimes built with a glass cover over a planting box, which may be filled with soil and planted with an assortment of plants to look like a garden. New York Botanical Garden terrarium designer Maria Colletti shows you how in her book, *Terrariums: Gardens Under Glass*. Readers can follow the many illustrations and step-by-step instructions to plant mini gardens under glass. Find or build your ideal greenhouse. Make your guests lean over to see what's inside. 

Sources for scale greenhouses and kits

- **Tumdee-Dollhouse-Miniatures** sells kits of several styles: www.tumdee-dollhouse-miniatures.co.uk (**photo 1**)
- **Malcolm's Miniatures** sells a 1:12 wooden kit that could easily be trimmed down to 1:24 scale or sunk into the ground as a pit house: www.malcolmsminiatures.co.uk
- **Sunflower Glass Studio** sells copper-framed and "antique glass" houses in traditional rectangular shape or octagonal-gazebo shape: <http://sunflowerglassstudio.com/minaturebuildings.php>
- Shop at local antique, garden, and thrift shops or department-store gift sections that sell terrariums (**photo 3**) and birdcages (**photo 4**)
- Check ebay.com, amazon.com, and craigslist.com for "miniature greenhouses"

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See more photos and a story about Poppleton Community Railway Nursery (courtesy of *16mm Today*). Visit www.GardenRailways.com and type "Poppleton Community Railway Nursery" in the search box.

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Perennial

NANCY NORRIS

Common name: Air plant

Latin name: *Tillandsia* sp.

USDA Hardiness Zones: 9-11

Cultural needs: No soil; indirect light indoors or shade outdoors; regular watering; air!

Plant size: 2-6"

Obviously they need air but these little air plants also require regular watering and specific amounts of light. In their native South American rain forests, these epiphytes (not parasites) use their roots only to anchor onto bark in trees, well under the canopy but high enough to receive drying winds. To mimic nature's gifts, grow your air plants where they can be removed from dry pots periodically to soak up water. You'll know when they look shriveled that they need moistening. Light misting helps between dunkings but drying out is just as necessary. Hundreds of species of tillandsias are in the Bromeliad family. *T. ionantha* 'Fuego' (seen here in the miniature greenhouse) grows purple flowers nestled among fire-red spiky leaves. The smallest varieties can be used to dress up your garden railway on special days or be left outdoors, attached to containers or structures if given periodic water, bright shade, and, of course, good, clean air. The leaves, not roots, take up nutrients and can be dunked in, or misted with, a solution of orchid fertilizer. You can separate pups, if you wish, when they are one-third as large as the parent, or let them "clump." Some of the plants in the photo were purchased from airplantshop.com and came with instructions. Learn more at <http://www.air-plants.com/pages/air-plant-care>

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Valley Train Station

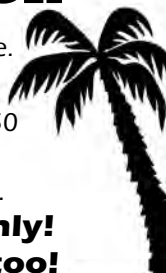
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1. Overview of the Nevada side of the mountains, with fewer trees and sage-like thyme growing along the track. Dianthus flowers brighten the blue and green foliage.

PHOTOS BY THE AUTHOR





A small-space line based on western railroading

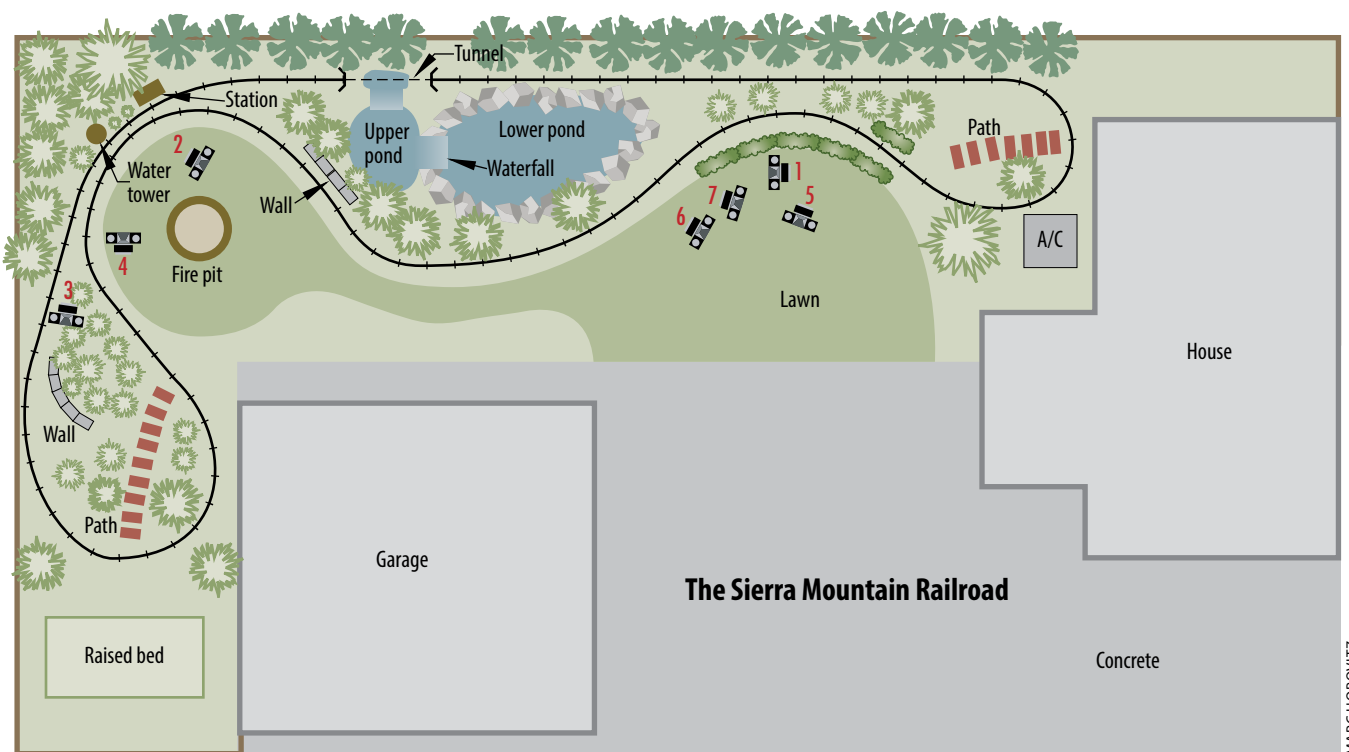
by Kyle Post | Dearborn, Michigan

The Sierra Mountain Railroad is loosely based on late-1800s railroading in the Sierra Nevada mountains. The railroad consists of a granite mountain, indicative of the Sierra Nevadas, and includes an alpine lake with cascading waterfalls rolling off the granite cliffs. The railroad crosses the granite mountain range through a tunnel that separates the more arid Nevada side of the garden from the densely forested California side. The primary railroad that operates here is the Nevada County Narrow Gauge.

Motive power consists primarily of live-steam and DCC-track-power steam locomotives. Live-steam operations are handled mostly by an Accucraft Nevada County Narrow Gauge 2-6-0 and 4-4-0. An Accucraft live-steam 2-6-0 Nevada Short Line narrow-gauge locomotive also operates occasionally. Electrically powered three-truck and two-truck Shays are from Bachmann. Rolling stock is a mix of Accucraft, AMS, and Bachmann.



The Sierra Mountain Railroad



2. NCNG No. 2 Nevada approaches the station. The depot and water tower are Piko kits. The station foundation is poured concrete with wire-mesh reinforcing. Dwarf Alberta spruce trees grow next to the depot.

The trackplan

This is my second rendition of an outdoor railroad. The first was a nine-foot-diameter circle of track laid on our backyard concrete patio. This was mainly used to run live-steam locomotives, which had a minimum turning radius of four feet. Our garage is in the backyard so there was not much real estate to fit eight-foot-plus diameter curves without completely removing the lawn, which was undesirable. I also wanted a pond and waterfall in

the backyard, which left even less area to fit a railway.

After taking numerous measurements and developing a number of sketches, I finally came up with a drawing that was a possible solution. The rectangular-shaped lawn would be split into two circular lawn areas with the pond in between. Since I wanted to run live steam, the grade needed to be as close to zero percent as possible for manual control and I needed access to the locomotive

The railway at a glance

Name: Sierra Mountain Railroad
Size of railroad: Approximately 1,100 square feet
Scale: 1:20.3
Era: Late 1800s
Theme: Sierra Nevada
Age: 8 years
Motive power: Live steam, track power, and battery power
Length of mainline: 172'
Maximum gradient: 0%
Type of track: Accucraft code-250 narrow gauge
Minimum radius: 4.5'
Structures: Piko water tower and passenger depot
Control system: Manual control, Digitrax DCC

over as much of the mainline as possible.

The solution was to run a portion of the mainline around the edge of the lawn and pond for easy access, then run the return line on the opposite side of the pond. Since that side of the pond would need water pipes to the external filter, along with sprinklers and power, I developed a plan to create a tunnel so that all of the utilities could run over the tracks. This also provided a good origination spot for the waterfall.



3. Engine N° 2 encounters a grizzly with its cub in the forest while passing golden Hinoki false cypress trees. Accucraft code 250, narrow-gauge track is used on this line.

As the trackplan is basically a dogbone with a pond in the middle, I needed to fit curves at the ends, which I wanted to be nine feet or greater in diameter. With the restrictions of fences, garages, and houses, I was able to get exactly nine-foot diameter curves at each end with about six inches to spare. This did mean I had to cut into my vegetable garden. However, I converted the garden to a raised bed to better fit the tight space.

Construction

My Dad and my wife Cherianne helped to survey the backyard and construct the roadbed. Cherianne helped select the annual and perennial flowers, and she planted them around the backyard. During construction of the garden and railroad, a datum at the tunnel was marked to locate the eventual level of grade for the



4. The NCNG train winds around a chamaecyparis-tree forest, starting with Boulevard cypress far right, closely followed by Baby Blue Sawara cypress.

Plants on the Sierra Mountain Railroad

Dearborn, Michigan | USDA Hardiness Zone 6

TREES AND SHRUBS

Crimson Princess Japanese maple
Acer palmatum 'Crimson Princess'

Common boxwood
Buxus sempervirens

Tom Thumb rockspray
Cotoneaster apiculatus
'Tom Thumb' (under the boxwoods)

Jane magnolia
Magnolia x 'Jane'

DWARF CONIFERS

Bess Hinoki falsecypress
Chamaecyparis obtusa
'Bess'

Cripps golden Hinoki falsecypress
Chamaecyparis obtusa
'Crippsii'

Split Rock Hinoki falsecypress
Chamaecyparis obtusa
'Split Rock'

Baby Blue Sawara cypress
Chamaecyparis pisifera
'Baby Blue'

Boulevard falsecypress, Sawara cypress
Chamaecyparis pisifera
'Boulevard'

Andy's Atlantic white cedar
Chamaecyparis thyoides
'Andelyensis Conica'

Eric's Atlantic white cedar
Chamaecyparis thyoides
'Ericoides'

Little Jamie white cedar
Chamaecyparis thyoides
'Little Jamie'

Blue Point juniper
Juniperus chinensis
'Blue Point'

Dwarf Irish juniper
Juniperus communis
'Compressa'

Gold Cone juniper
Juniperus communis
'Gold Cone'

Blue Star juniper
Juniperus squamata
'Blue Star'

Dwarf Alberta spruce
Picea glauca 'Conica'

Jean's Dilly spruce
Picea glauca 'Jean's Dilly'

Mugo pine
Pinus mugo

Emerald green arborvitae
Thuja occidentalis
'Smaragd'

GROUNDCOVERS

Elijah Blue fescue grass
Festuca ovina 'Elijah Blue'

Blue star creeper
Isotoma fluviatilis

Moss phlox
Phlox subulata

Irish moss
Sagina subulata

Woolly thyme
Thymus pseudolanuginosus

Creeping thyme
Thymus serpyllum

Elfin thyme
Thymus serpyllum 'Elfin'

Common thyme
Thymus vulgaris

PERENNIALS

Woods Purple aster
Aster 'Woods Purple'

Lily-of-the-valley
Convallaria majalis

Flower Record crocus
Crocus 'Flower Record'

Golden Yellow crocus
Crocus 'Golden Yellow'

Fire Star pinks
Dianthus 'Devon Xera'

Neon Star pinks
Dianthus 'Neon Star'

Sangria Splash pinks
Dianthus 'Sangria Splash'

Hyacinth
Hyacinthus orientalis

Hydrangea
Hydrangea macrophylla

English lavender
Lavandula angustifolia

Shasta daisy
Leucanthemum x *superbum*

Oriental poppy
Papaver orientale

Rose
Rosa sp.

Tricolor sedum
Sedum spurium 'Tricolor'

Autumn Joy sedum
Sedum telephium
'Autumn Joy'

Tulip
Tulipa sp.

ANNUALS

Aloha Blue flossflower
Ageratum 'Aloha Blue'

Blue lobelia
Lobelia erinus

Geranium
Pelargonium x *hortorum*

Dwarf French marigold
Tagetes patula

Verbena
Verbena sp.

Viola
Viola hybrida

Pansy
Viola x *wittrockiana*



5. The Bachmann Shay hauls logs along the chain-link fence, which is hidden by Emerald Green arborvitae.

tracks. We located several points along the proposed trackplan with surveying equipment and pounded stakes to mark the grade. The initial grade was lined with landscape fabric and 4" fiberglass edging.

Ballast for the track was one of the next problems to solve. In the southeast Michigan area, there isn't a good supply of crusher fines or small crushed gravel. I collected a number of potential samples from different landscape-supply companies and found something called slag sand. From the name, I figured it would be similar to beach sand, which easily washes away but, after a test with the hose, I was surprised. The water hit the pile of slag sand and immediately drained without eroding the pile. After some

research, I found that slag sand was a by-product of the steel plants' smelting process. Slag is crushed into a fine consistency to create the slag sand. Upon close inspection, I found that it is made up of sharp fragments that lock together. I also found that the local full-size railroads ballast their roads with slag so I figured, if it is good enough for the real thing, why not use it on the garden railway? I am happy to report that over eight years, with snow, ice, and flooding, the roadbed is still intact with little maintenance required.

Accucraft code 250, narrow-gauge flex track was laid over the grade. I staggered the rail joints a foot or more. Rails are secured with Split Jaw clamps and the power is run into the house to ensure that weather would not be a concern for the DCC electronics.

Climate

In Michigan, the climate is cold in winter and hot in summer. Winter can be bitter cold with snow and ice. At times, temperatures can dip below 0°F. The high for the day might be a single-digit temperature. The cold takes a toll on the garden and pond. Trees and shrubs have been damaged by the colder-than-average winters the last few years. The pond freezes over but a bubbler and heater maintain a hole in the ice for the fish, which stay in the pond year round. The 4" of slag sand in the roadbed only suffers minor frost heave, which is easily corrected.

Summer can be hot and humid, with occasional heavy downpours or severe thunderstorms. Sometimes the rain is so heavy that it floods the lawn in the backyard and completely covers the track, which is 3" higher than the lawn. In 2014 we had record rainfall that dropped 6" of rain in one day. This caused the pond to rise above the track and the goldfish could be seen swimming along the right-of-way. After the water subsided, we found that the slag sand on the roadbed withstood the heavy rain and floods surprisingly well, with minimal reballasting required around the track afterward.

As for the future of the Sierra Mountain Railroad, we are contemplating whether to add an incline railway to complement the Sierra Nevada Mountains theme. The next task is to decide how we can squeeze it in and to make sure it is well integrated with the rest of the garden. 🐾



6. The DCC track-powered Shay passes a school of fish. Three cascading waterfalls start above the tunnel and are fed by a 4,000-gallon-per-hour pump. The pond was originally stocked with 10 goldfish in 2007. The population has now multiplied to more than 60. Raccoons enjoy hiding next to the upright rock and grabbing a fish now and then. Up front, a Blue Star juniper hangs over the water.



7. The garden and railway under construction in 2007. The channel on the right will later be filled with slag sand for the roadbed. Dianthus mounds bloom near the proposed pond.

About the author



Kyle was born and raised in Reno, Nevada, and has been interested in trains since he was little. His Dad was a train enthusiast who also taught horticulture at the University of Nevada Reno, which led to Kyle's interest in model railroading and gardening. Kyle moved to Dearborn, Michigan 15 years ago to work at the Ford Motor Company in engineering. He currently works in Research & Advanced Engineering and manages a global team. He is married to Cherianne and they have two kids. Their daughter (age 6), and

son (age 3), like to help plant flowers and vegetables, and enjoy finding worms when digging the holes. They also enjoy reballasting the track in the springtime with their plastic shovels and pretend to be the conductor and give commands and hand signals to Kyle while he's operating the train.



This beautiful viaduct on the author's railway was inspired by a full-size bridge on a rural railway in France.

A **viaduct** to span a scale canyon

Building a bridge from PVC sheet: Part 1

by **Bernard Déluard** | Fontaine les Dijon, France | PHOTOS AND ILLUSTRATIONS BY THE AUTHOR • TRANSLATION BY GEOFFREY NICKSON

At the end of my garden, not far from the terminus station Noyers-sur-Couches, is a large hole that sometimes fills with water. My father-in-law, who owns the property, had several times challenged me to “build a viaduct over the hole!” This construction project took a while to be implemented, as it required restructuring the dry stone wall at the back of the

garden to provide a sufficiently large curve on the line. It also implied extending the line beyond the terminus, a situation that was actually encountered on the real Vivarais system when the line from Tournon was extended beyond Lamastre to Le Cheylard.

Drawing up the plans. The width of the hole to be crossed (approximately 2.50m—around 8') and a sheet of

expanded PVC (3m x 1.20m—9'10" x 4') suggested that I plan for three arches, each 50cm (1'8") wide. For the overall dimensions of the viaduct and the arrangement of the stones, I was inspired by photos published in the book *Le Réseau du Vivarais au temps des CFD* by Pascal Bejui, Christophe Étiévant, and Vincent Piotti (published by La Régordane). The measurements of the ridge

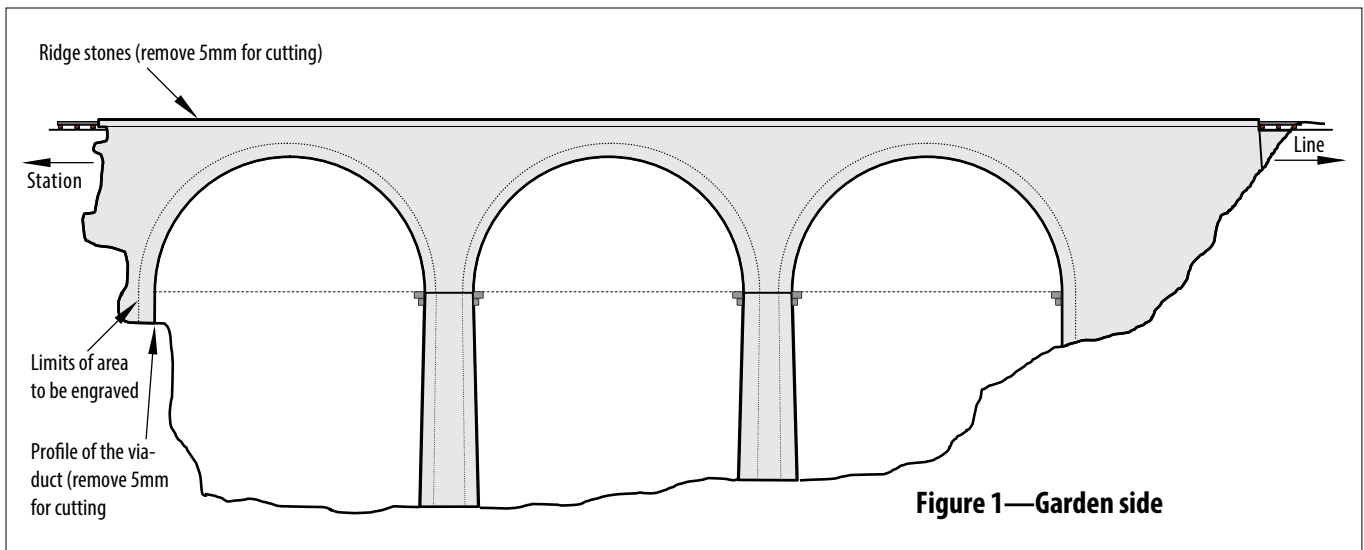
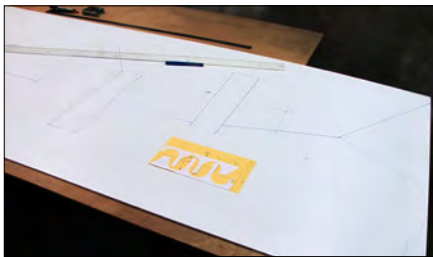


Figure 1—Garden side



1a. A small drawing of the full-size pattern helped to determine the placement of pieces on the sheet of PVC.



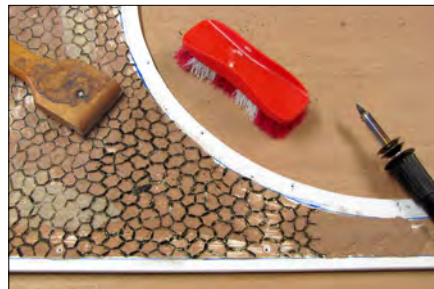
1b. The lines were carefully transferred to the PVC sheet.



1c. The inner surfaces of the arches were laid out on separate sheets.



2. The PVC was coated with adhesive, then sprinkled with sand to provide texture.



3. Engraving the "stones" was done with a wood-burning pen.



4. Straight lines were engraved with a laminate knife and a straightedge.

stones, the corbels, and other details were also worked out using the illustrations in this book. I drew up **figures 1, 2, and 3** to aid me in the construction.

Cutting the pieces. A scaled-down pattern (**photo 1a**) helped me determine how best to lay out the pieces on the expanded-PVC sheet. The straight cuts were made with a circular saw. To reduce the number of curved cuts made with a saber saw, both sides were bolted together through the middle of each arch. Accurate tracing and high-quality tools ensured good results (**photo 1b**). The inner surface of the arches, extended by the inside faces of the pillars, are almost rectangles and are easy to lay out (**photo**

1c). The borders between the areas to be engraved and those to be covered with corner stones were marked.

Flocking and engraving. Expanded PVC is almost perfectly smooth. To give it a more stone-like appearance, I first coated the plastic with PVC adhesive, then immediately sprinkled fine sand over the surface (**photo 2**). As the adhesive evaporates quickly, I worked on one small area at a time. This type of "flocking," although designed for indoor use, stands the test of time. My first attempt remained in the garden for two decades and was only repainted when I built this new viaduct.

Hot engraving. Engraving the hexagonal stones was done with a pyrography

burner (a wood-burning pen—**photo 3**). This requires plenty of patience, especially in view of the large surface to be treated.

Cold engraving. The inner surfaces of the full-size arches were built of rectangular, cut stones, which meant they could be engraved with a laminate knife and a straightedge (**photo 4**). The areas that would be covered by decorative elements were not engraved.

First coloring. To evaluate my work, a first coat of outdoor acrylic paint was applied with a brush to the engraved parts—white, with a touch of sienna earth (**photo 5**). As is the case with a surfacing primer, any necessary corrections stand out at once.



5. An initial coat of tinted outdoor acrylic paint was applied to help define the stones.



6. Gray PVC strips form the ridge stones.



7a. Corners were smoothed with a sander.



7b. Joints between the stones were formed with a hacksaw blade and a triangular file.



8. Small cubes of PVC were placed around the arches for assembly.



9. PVC cross beams were applied to the first side.

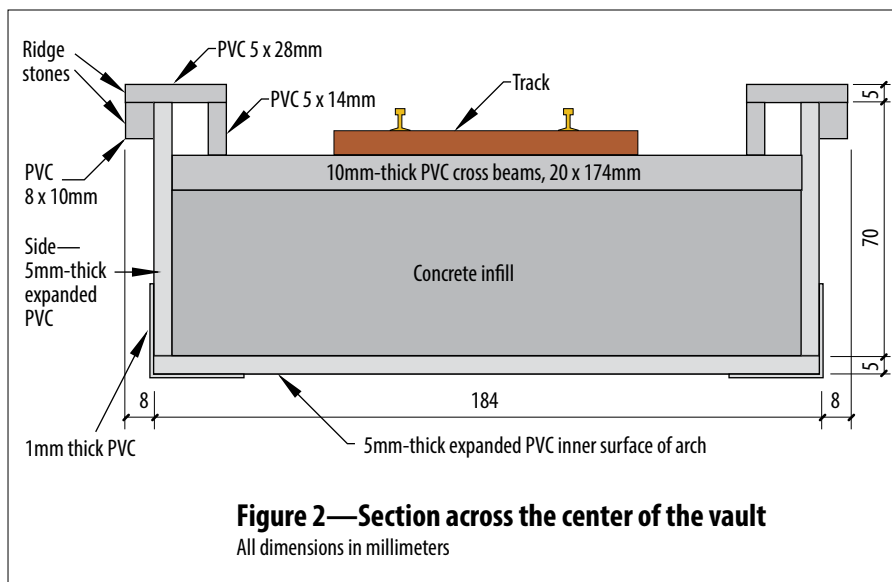


Figure 2—Section across the center of the vault
All dimensions in millimeters

The ridge stones. This part is essential in terms of aesthetics, but the ridge stones were also used for assembly. I made them out of strips of gray PVC, cut to the measurements shown in **figure 2**. Glued end-to-end in staggered rows, they extend along the entire length of the viaduct (**photo 6**).

Perfect cutting. All the sharp corners were smoothed with a disc sander (**photo 7a**). Flocking was the same as for the sides. The joints between stones were made with a hacksaw and a triangular file (**photo 7b**). The red marks indicate the locations of future holes for the parapets, to avoid placing joints there.

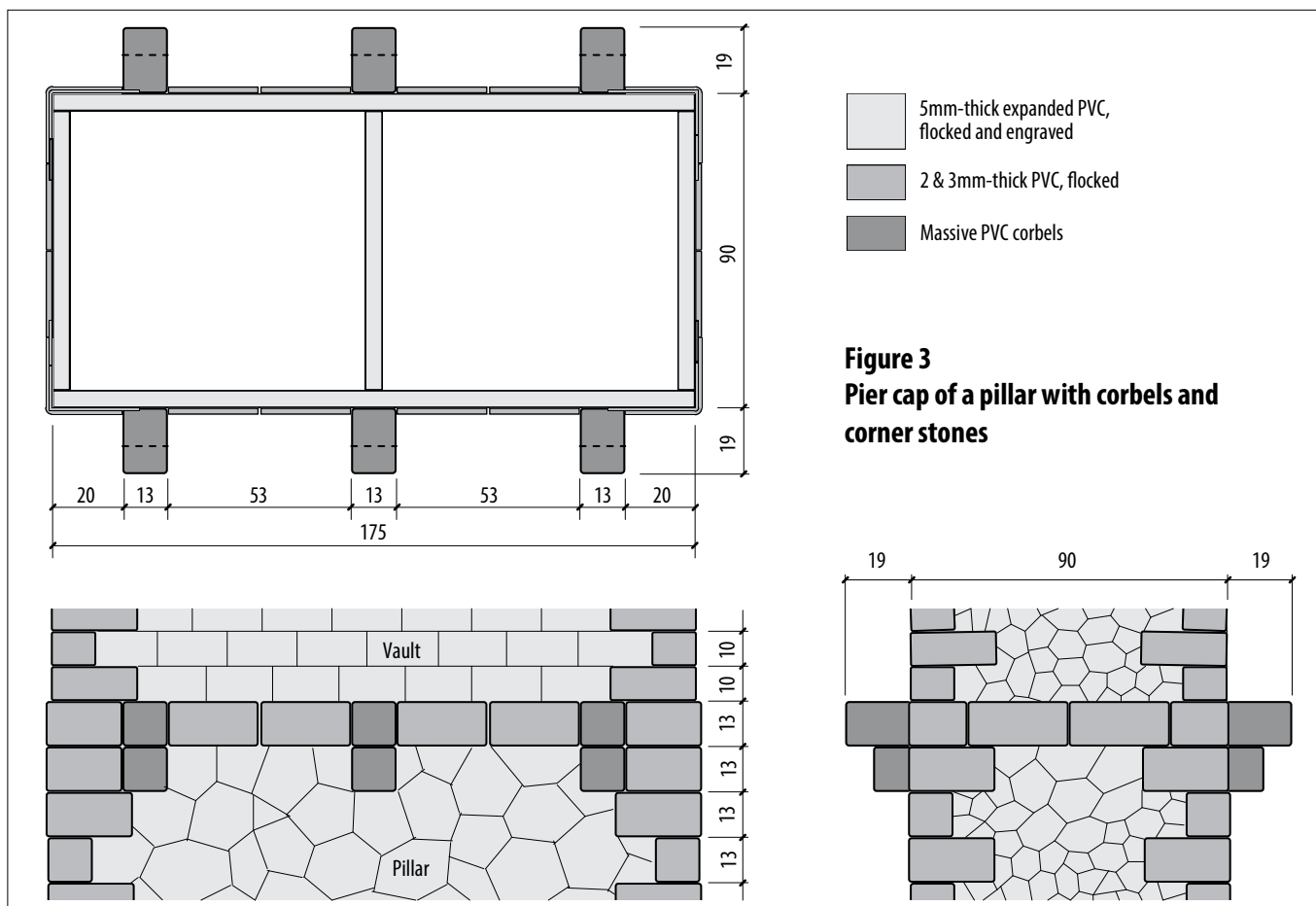
Preparing for assembly. All assemblies were glued and screwed together to ensure adequate strength in the mold when pouring the concrete. Screws in expanded PVC are weak—they must run right through into hard PVC. I used 3mm-diameter chipboard screws. To assemble the sides and the arches, small

pre-drilled 10mm ($\frac{3}{8}$ ") PVC cubes were fixed along the edges of the arches on the inside (**photo 8**). The wooden pieces fill the gaps formed by the ridge stones.

Fitting the cross-beams. On one of the sides, 10mm PVC cross-beams were screwed in place, level with the future track bed (**photo 9**). They would be used for attaching the ties. Ultimately, the screws holding these cross-beams in place would be the only ones not concealed. They will be hidden by a drop of PVC adhesive flocked with sand.

Assembling the second side. The second side was also glued and screwed to the cross-beams (**photo 10**). Fixing the second side to the beams had to be done with the greatest accuracy, to within a millimeter, as any mismatch would make it harder to attach the arches and would warp the entire structure.

The inner surface of the arch. The position of the screws for attaching the inner arches had first to be marked by



10. The second side is attached.



11. Inner surfaces of the arches are fixed in place.

pre-drilling. The inner sides of arches and pillars were then assembled (**photo 11**). This was a difficult task, requiring great accuracy to achieve satisfactory curvature and ensure proper tightness.

Closing the pillars. Clamps held the assembled components to ensure the adhesive set properly. A perforated partition was fitted inside the pillars and was glued in place to make the mold more rigid (**photo 12**). Assembling and attaching this part was made easier by the slightly pyramid-like shape of the pillars.

The mold is complete. I now had a mold that had volume and which must be put in place before the finishing touches




13. The finished PVC mold, ready for installation in the garden.

could be applied. It is lightweight and fairly rigid, and gives a good idea of what the final viaduct will look like.

In the second part of this series, I will describe how I installed the viaduct, cast



12. This perforated partition was glued inside the pillars to make the mold more rigid.

the concrete inside the mold, and finished off the work. 

Special thanks to Voie Libre for allowing us to use this translation.



1. A truck from Wesley's Creamery has arrived at Blacklog Depot to drop off empty milk cans to send back to the farmers. In the background stands the Beers & Green woodworking shop, makers of wood pins, spokes, and barrel staves. Cut timber arrives via flatcar, while finished products are carted to the freight depot for shipment.

TEN YEARS on THE TUSCARORA

A fictitious railroad based in reality

by Kevin Strong | Centennial, Colorado | PHOTOS BY THE AUTHOR



THE YEAR WAS 1905 and the people of Fulton County, Pennsylvania, were feeling isolated. Theirs was the only county in all of Pennsylvania without so much as a mile of railroad laid into it. There had been lofty proposals, surveys, and even lines graded but none ever seemed to bear fruit until a lumber company saw potential in the vast timber resources that Fulton County offered. The company wanted to tap those resources and realized that half their work had already been done for them by those earlier efforts.

Of particular interest to the lumbermen were the efforts of two railroads: the Tuscarora Valley and the neighboring East Broad Top (EBT). Both had surveyed and graded lines through the Tuscarora valley in the 1890s, but work inexplicably stopped before rails were laid. The East Broad Top's Shade Gap branch ran east from their iron furnaces in Rockhill Furnace to Shade Gap but the rails ended there. Their grade continued southeast from Shade Gap to Neelyton, then turned south to Burnt Cabins, where it was to join the stillborn South Penn Railroad. The Tuscarora Valley Railroad formed a subsidiary, the Tuscarora Railroad, which graded a line from Blair's Mills south to Neelyton, then paralleled the EBT's grade to Burnt Cabins.

The lumbermen negotiated with both the EBT and TVRR to purchase their unused grades. They took the name of the Tuscarora Valley's southern extension, "Tuscarora Railroad," and by 1907 the people of Fulton County finally had their connection to the outside world.

The Tuscarora Railroad (TRR) ran from Blair's Mills south, through Neelyton to Burnt Cabins, with a westward branch from Neelyton to Blacklog, where it joined the East Broad Top. The TRR operated a stable of its own locomotives, but leased its freight and passenger equipment from the East Broad Top. In the early years, locomotives from the EBT would also be used when the TRR's engines were in for repairs. The TRR would operate until the mid 1940s, when competition from the automobile, combined with declining timber revenues, finally overwhelmed the small agricultural line.

The above history is much abbreviated from what I've written about the Tuscarora Railroad but, at the same time, is much longer than what I would have envisioned writing about the railroad when I first began building my garden railway 10 years ago. My original goal was to model the East Broad Top's Shade Gap branch. However, I didn't have any EBT locomotives. Without locomotives it's hard to run trains, so the notion of a freelance railroad that ran along the same tracks was born. I planned to use commercially available locomotives to pull my trains until such time that I could build a fleet of East Broad Top engines, then sell the TRR locomotives and concentrate on the EBT.

As the John Lennon song goes, "Life is what happens while you're busy making other plans." I built my EBT locomotives but ended up building more TRR locomotives as well. Along the way, the myths surrounding the TRR began to take on a



2. TRR 2-8-0 N° 3 pauses for water on the east end of Blacklog. The water tower at Blacklog gets its water from the adjacent creek. Crews installed this water stand at the east end of the yard, fed by the water tower. It's more convenient for watering locomotives.



life of its own. What started as a convenient excuse for a railroad based on two real, proposed railroads has evolved into a narrative into which is woven the actual history of the region. I studied the economies of that part of Pennsylvania, learning what natural resources really did exist, and how such a railroad, if built, would have been able to survive on them. The railroad has taken on a history covering its beginning, glory days, and—as happened to almost all narrow-gauge lines—its ultimate demise. Whenever I build a new piece of equipment for the railroad, it finds a place within that history, and the story of the Tuscarora Railroad gets richer with each new piece.

That's the story of why the TRR came to be. *How* it came to be is a little more traditional. My wife Allison and I had recently moved to Colorado and bought a house. I built a small, temporary loop of track in a rock garden but the itch to build my "real" railroad was getting stronger. I decided that 2005 was the year I was going to start. I figured it would be a fairly long process, as I wanted to hand-lay my track, build all my switches, and I had a

long grocery list of structures I wanted to custom build. Building a garden railroad, though, isn't a race to be run but a journey to be enjoyed, right?

"Honey, I'm pregnant."

Sometimes that journey gets kicked into high gear real fast! Those three words put construction in a whole new light. I knew if I didn't get landscaping in and rails laid by fall, progress would then become painfully slow, as railroad construction would take a back seat to the newborn. My dreams of handlaid track and switches succumbed to the expedience of commercial flex track and switches. The first dirt arrived in June of 2005 and the golden spike was driven a mere two months later. The railroad wasn't much to look at in terms of landscaping but at least trains were running before the baby came, which was the goal.

It's been 10 years since that golden spike was driven. Plants have grown in, rails have weathered, and buildings have been built (and fallen apart and been rebuilt). Along the way there have been many lessons learned but, more importantly, the

The railway at a glance

Name: Tuscarora Railroad

Scale: 1:20.3

Era: 1910s

Age: 10 years

Minimum radius: 5'

Total track length: approximately 300', double reverse loop with sidings

Track material: code-250 brass (AMS w/ Sunset Valley switches)

Power: Battery R/C and live steam

Maximum grade: 2.5%

Area: 30' x 65'

Website: <http://tuscarorairailroad.blogspot.com>

railroad has really come to fulfill my goals for what I wanted in a railroad.

My primary goal was that of realism. I didn't want my railroad to be an abstract representation of what 1910s rural Pennsylvania looked like; I want it to *be* 1910s rural Pennsylvania. I wanted the railroad to transport me back in time. I wanted to look at a scene through a camera's



3. The Tuscarora Railroad was designed specifically to leave the middle of the author's yard open so that his kids and dogs would be able to play and not endanger the railroad. East Broad Top No 7 has just arrived in Blacklog (upper left) and is preparing to switch out the interchange track, where it will leave cars for the TRR crews to pick up.



4. Crews prepare to unload a Dolly Varden car full of hemlock bark at the Dublin Steam Tannery under a bower of boxwood trees. Hemlock bark is rich in tannins, necessary to process animal hides into leather. Why these open-sided cars were called Dolly Varden cars is lost to history.



5. If the presence of the superintendent's Model T in the parking lot of the Neelyton Depot is any indication, there are big doins' in town. No 5, an 1881 Baldwin 2-8-0, came to the railroad secondhand.

viewfinder and not be able to tell that it wasn't a picture of the prototype. I've spent a lot of time working with scale plants and buildings, creating a miniature landscape. My line is built to 1:20.3 scale, so everything on it—plants, buildings, details—has to play into that. That doesn't mean there aren't non-scale elements (especially plants, like raspberry bushes

and ivy along the back fence), but I make a point to use them as background elements, not focal points. You see them, but your eyes are drawn to the scale elements in such a way that they kind of disappear.

The plants

I'd love to give you the impression that I had a distinct plan for what plants would

go where, when beginning construction of the railroad. I had a vague idea but plants tend to have minds of their own regarding where they're going to thrive and where they're going to fail. The garden has been the epitome of an evolution, one that changes year to year, as some plants decide they've had enough of my nonsense. Every spring means replacing

6. TRR 2-8-0 N° 5 brings the daily freight into Shade Gap. This is one place where the author wishes he had a little more space between the track and the fence for more background plants.





7a. LEFT: Blacklog began as an open field of dirt with a few small plants and a roughed-in shell of a depot. Consolidation N° 3 pushes a load of timbers onto the Beers & Green siding, though the building hadn't been built. **7b. RIGHT:** Ten years later, N° 3 is still working Blacklog, though things have changed considerably. A new depot and other buildings, a tunnel in the back corner (behind the bench), and mature plants have transformed the scene into a lush rural landscape. Shrubby boxwood trees add structure to the landscape while a mugo pine tries to hide the 1:1 bench.

probably a dozen or so bushes and replenishing groundcovers here and there. While frustrating on one hand, this does allow me the chance to experiment with new things, and I've re-envisioned several areas of the garden much-for-the-better as a result.

Operation

My second goal was to do prototypical operations on the railroad. I've always had a fascination with how real railroads operate, and simply running trains around a loop has always seemed a bit flat to me. I designed sidings and industries so that there were places from which to get resources and places to take them to.

Lumber is big business on the TRR so there are a number of timber-related industries, such as the Minnick tannery (bark) and the Beers & Green pin mill (cut timber). Timber is also shipped to the "outside world" via an interchange track with the East Broad Top, which also brings goods to various freight depots along the line. I've added additional spurs that serve more industries and locations. With 14 freight cars on the railroad, it takes me about two hours to move all of the freight that needs to be moved on the line. I keep the cars in a storage shed at

Plants on the Tuscarora Railroad		
Centennial Colorado USDA Hardiness Zone 5		
DWARF CONIFERS	Spearmint	Euonymus
Dwarf Alberta spruce	<i>Mentha spicata</i>	<i>Euonymus fortunei</i>
<i>Picea glauca</i> 'Conica'	Irish moss	'Emerald Gaiety'
Dwarf mugo pine	<i>Sagina subulata</i>	Blue fescue grass
<i>Pinus mugo</i>	Scotch moss	<i>Festuca glauca</i>
Spreading yew	<i>Sagina subulata</i> 'Aurea'	'Elijah Blue'
<i>Taxus x media</i>	Sedum, Stonecrop	Russian sage
'Densiflormis'	<i>Sedum</i> sp. (various)	<i>Perovskia atriplicifolia</i>
GROUNDCOVER	Thyme	American red raspberry
Massachusetts kinnikinnick	<i>Thymus</i> sp. (various)	<i>Rubus strigosus</i>
<i>Arctostaphylos uva-ursi</i>	Turkish veronica (aka Turkish speedwell)	Dwarf spirea
'Massachusetts'	<i>Veronica liwanenses</i>	<i>Spirea nipponica</i>
Sweet woodruff	PERENNIALS	'Little Princess'
<i>Galium odoratum</i>	Boxwood	
White Nancy deadnettle	<i>Buxus</i> sp. (various)	Plus, many other plants I thought would look cool but whose names I've forgotten.
<i>Lamium maculatum</i>	Chrysanthemum	
'White Nancy'	<i>Chrysanthemum</i> sp. (various)	

one end of the railroad so it's easy to hook up a locomotive and get trains running.

Finally, I wanted the railroad to be reliable. Running the railroad—whether I'm having an operating session or just

watching a train run around the garden—has to be stress free. This is what I do to escape reality. Nothing ruins the mood like a train that keeps derailing. Of all the goals I set for the railroad, this one has



8. This storage shed provides shelter for rolling stock ready for an impromptu operating session. Not having to hand-carry cars from the railroad to storage shelves in the basement or garage greatly increased the frequency of operation.



9. Lumber is big business on the TRR. Logs, cut timbers for mine props and railroad ties, and other forest products provided the backbone of revenue for the railroad through most of its life. The presence of East Broad Top 2-8-0 No. 7 on the point of the daily passenger train sets the time of this photo at sometime prior to 1913. Variety in groundcovers up front, like the white deadnettle on the right, is balanced by a backdrop of dwarf Alberta spruce.

required the most attention to detail—not the same kind of detail as the other goals, with respect to studying the prototype and accurately recreating it, but detail in the way of making sure that the engineering of the track and trains is the best I can make it. My philosophy is that everything starts with the track; if I keep that in good shape, many other ills go away. It's a railroad. It's outdoors. This is sometimes a chore but the end result of worry-free running makes it well worth the effort.

What would I have done differently?

When I had the railroad open for last summer's National Garden Railway Convention tour, the most asked question

was, "What would you do differently?"

When I built the railroad, I laid PVC pipe along the route as a support to keep the track in place. I've since found that, as the ground moves through natural forces, the pipe has a tendency to "roll up" in the ballast, so I had a lot of humps between my vertical support posts, which caused the track to hump along with it, as it was secured to the pipe every foot or so. I've since removed many of the screws holding the track to the pipe, screwing it down every five feet or so. This means the track is more floating in the ballast than tightly secured but it withstands the dogs and kids well enough and stays more even as the weather changes. If I were to do it again, I'd use support material with a

square or rectangular profile instead of round.

The other thing I wish I had done differently, but is too much work to remedy, is that I had built the narrow parts of the garden, where it runs along the fence, just a foot or so wider. Those parts are about 30 inches wide, from the back to the edge of the rockwork, which I thought would be sufficient. What I've found, though, is that I don't have as much space for plants between the fence and the track as I would like. In some places, the track is as close as six inches to the back edge of the railroad, which doesn't leave much room for vegetation. I've started placing rocks in those locations to hide the fence but I'd much prefer greenery.


About the author



Kevin Strong often thinks he was born 100 years too late, except for that "no indoor plumbing" thing. He's long had a fascination with narrow-gauge steam and the industrial revolution. That passion is evident in his backyard and also through "Colorado's Most Endangered Places," an annual documentary that he produces for CBS in Denver to bring attention to historic sites in the state that are in need of preservation, and for which he won the State Honor Award last year. When he's not doing that, or his more regular task of editing stories for the evening news, he can usually be found on a road trip somewhere in the state with his wife and kids, searching out trains (for Kevin), playgrounds (for the kids), and hot springs (for everybody). TRACY CALVERT, PHOTOGRAPHY TLC

The future

What does the next 10 years hold? There are still some places that frustrate me, visually, so I'll tweak those areas in the hope that something finally clicks. I'm also the kind of person who gets completely random ideas (like my tunnel) so it's anyone's guess what's going to happen down the road.

While I may have already written about how the TRR got its start, and how it would ultimately come to its end, there's no limit to the number of chapters between those two points, chapters that get written with every new idea. I'm going to have fun writing those stories. 

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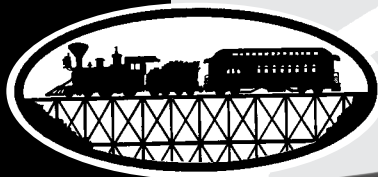
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- ✓ 20 amps of pure DC power
- ✓ Switchable momentum



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This little arbor can add a lot of character and interest to your miniature garden. It's also a great woodworking project.

Build an arbor for your miniature garden

This woodworking project will add a focal point

by **Jacqueline Brown** | Chatham, Ontario | PHOTOS BY THE AUTHOR, ILLUSTRATIONS BY MARC HOROVITZ

A miniature arbor can add interest to your garden while also giving it a sense of scale. Use it with miniature figures and other accessories to create a focal point. This article will show you how to build one out of wood.

We'll start with the simplest part first—the legs (part E). Cut four of them, each 4" long, out of $\frac{1}{4}$ " x $\frac{1}{4}$ " cedar.

Lattice

The lattice is made of two different parts (C and D), each made from $\frac{1}{8}$ " x $\frac{1}{8}$ " cedar. For part C, cut 10 pieces, each $1\frac{1}{4}$ " long to form the cross pieces. For part D (the uprights), cut four pieces, each $3\frac{1}{2}$ " long.

On each lattice upright (D), mark the center as shown in **figure 1**, then mark $\frac{1}{2}$ " increments on either side of the center mark for the placement of the cross pieces (C). Using the legs (E) as spacers, glue the cross pieces (C) in place, as shown in **photo 1**.

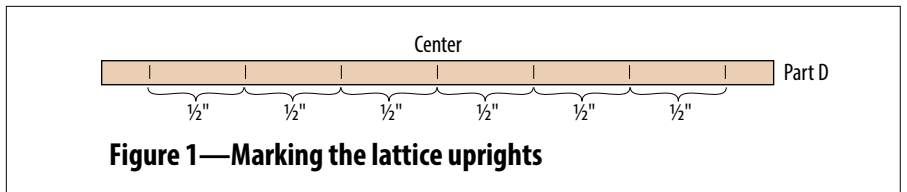
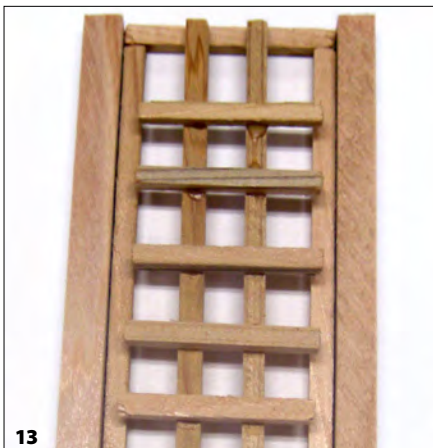
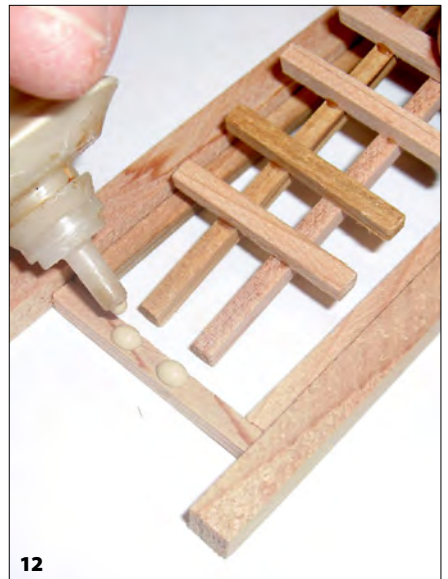
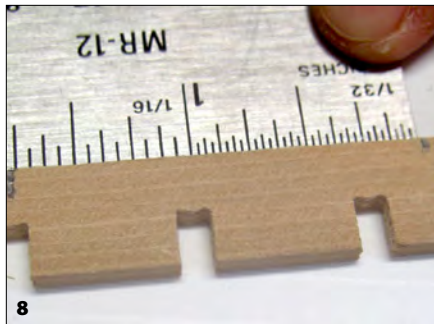
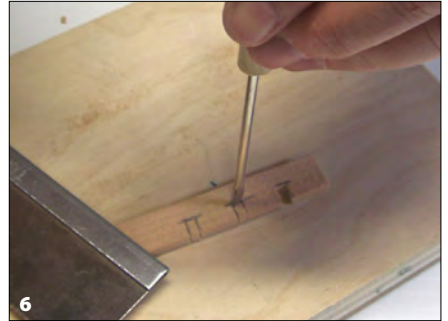
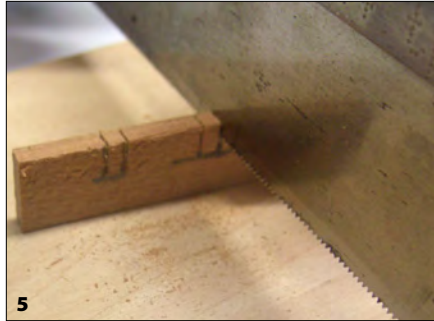
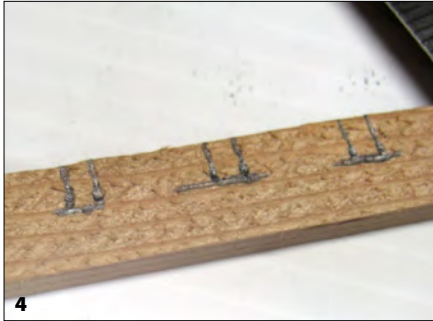
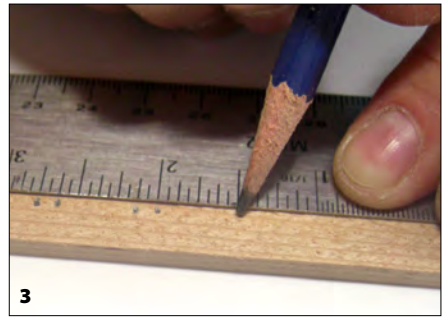
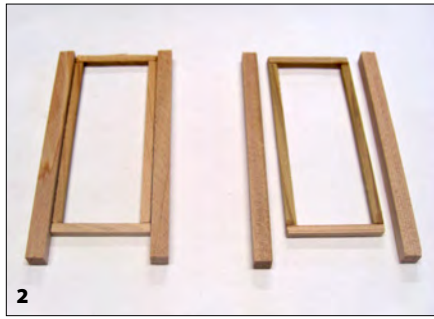
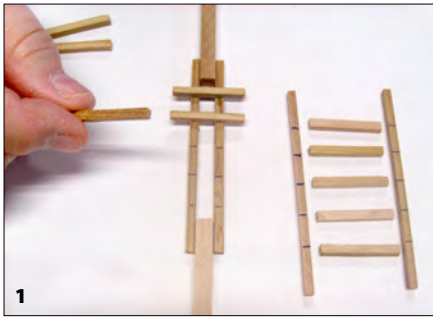
Assembling the trellis frame

Before assembling the lintels and rafters, we will next put the trellis frame and legs together, then use this assembly as a spacer for the lintels. Using the $\frac{1}{8}$ " x $\frac{1}{8}$ " wood, cut the following pieces: four $1\frac{1}{2}$ "-long pieces for the tops and bottoms (part A) and four $3\frac{1}{4}$ "-long pieces for the sides (part B). To make the trellis frame, glue

top (A) and bottom (A) to sides (B). Glue legs (E) to the outsides of the frames, making sure the ends are flush with the tops of the frames, as shown in **photo 2**.

Lintels and rafters

While the glue is setting on the leg assembly, cut the lintels and rafters. Take your $\frac{1}{2}$ " x $\frac{1}{8}$ " board and mark $\frac{1}{8}$ " x $\frac{1}{4}$ " notches, $\frac{5}{8}$ " apart, as shown in **figure 2** and **photos 3** and **4**. Cut the notches with a small saw, being careful not to cut deeper than $\frac{1}{4}$ " (**photo 5**). Using a small screwdriver or $\frac{1}{8}$ "-wide chisel, place the tip at the bottom of each notch and gently tap it with a hammer, which will knock out the small pieces of wood (**photo 6**).

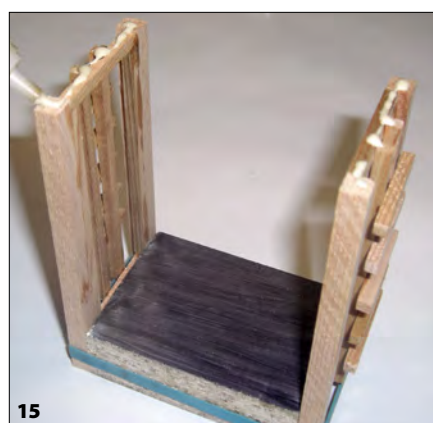
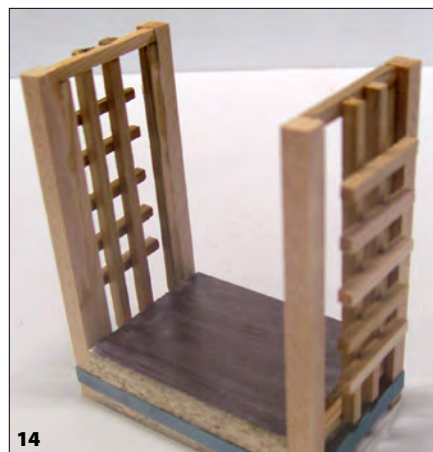
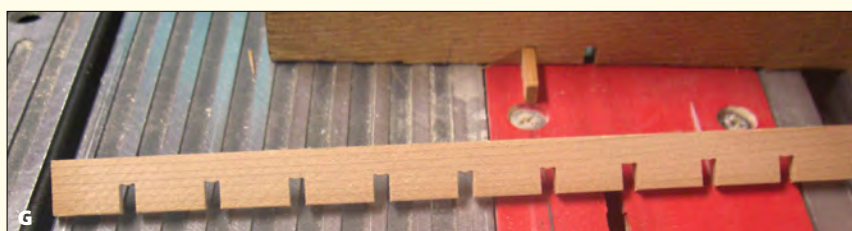
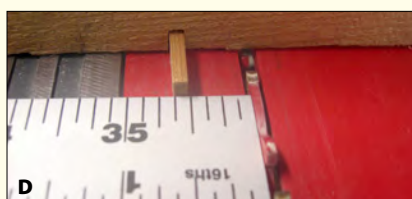
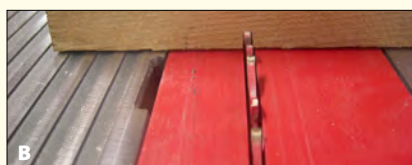


Alternate method of making lintels with a table saw

You can use your table saw to make the lintels and rafters. To do this, you'll have to attach a backer board and a stop to your miter gauge. (Note the saw guards have been removed for the photographs.) Set your table-saw blade to a height of $\frac{1}{4}$ " (**photo A**).

Attach a backer board to your miter gauge. The backer board should extend a few inches to the right of the saw blade, as you're facing the saw. Since a standard saw blade is $\frac{1}{8}$ " thick, this will make the appropriate-width cut for the notch on the lintels. Cut the notch in your backer board (**photo B**). In this notch, place a 2"-long piece of $\frac{1}{4}$ " x $\frac{1}{8}$ " strip-wood (protruding on both side of your backer board). This piece will act as your stop (**photo C**).

Shift the backer board $\frac{5}{8}$ " to the right of the saw blade. This will help you make evenly spaced notches (**photo D**). Place your $\frac{1}{8}$ " x $\frac{1}{2}$ " strip against the backer board, hard up against the stop (**photo E**), then cut the first notch. Move the board, placing the notch you just cut over the stop in the backer board, then run the board through the saw again, making your second notch (**photo F**). Repeat this procedure to the end (**photo G**), then cut your lintels to the appropriate length and angle as previously shown.



With a protractor, mark the 30° angles as per **figure 2.1** (**photo 7**), then cut the ends of the two lintels. If you do not have a protractor, mark the center of the third notch from one end (**figure 2.2**). Mark the bottom of the lintel $1\frac{3}{4}$ " from your center mark; mark the top of the lintel $2\frac{1}{16}$ " from the center mark. These marks will give you the 30° angle, as shown in **photo 8**. Now cut your lintels to length.

Make the rafters (H) from the $\frac{1}{8}$ " x $\frac{3}{8}$ " strip. Cut the rafters' ends at a 30° angle, as shown in **figure 3**.

Assembling the arbor

To put the lintels-and-rafters assembly together, and to keep them evenly spaced,

Wood list (all clear cedar)

60" of $\frac{1}{8}$ " x $\frac{1}{8}$ "
18" of $\frac{1}{8}$ " x $\frac{3}{8}$ "
10" of $\frac{1}{8}$ " x $\frac{1}{2}$ "
17" of $\frac{1}{4}$ " x $\frac{1}{4}$ "

Required tools

Small saw
Rubber band
Wood glue
Small clamps
Small screwdriver or chisel
Small hammer
Small block, $\frac{1}{2}$ " x 2" x $2\frac{5}{8}$ "

Wood cutting list

Part	Qty.	Dimensions
A - Trellis frame	4	$\frac{1}{8}$ " x $\frac{1}{8}$ " x 1 $\frac{1}{2}$ "
B - Trellis frame	4	$\frac{1}{8}$ " x $\frac{1}{8}$ " x 3 $\frac{1}{4}$ "
C - Lattice	10	$\frac{1}{8}$ " x $\frac{1}{8}$ " x 1 $\frac{1}{4}$ "
D - Lattice	4	$\frac{1}{8}$ " x $\frac{1}{8}$ " x 3 $\frac{1}{2}$ "
E - Leg	4	$\frac{1}{4}$ " x $\frac{1}{4}$ " x 4"
F - Leg stop	2	$\frac{1}{8}$ " x $\frac{1}{8}$ " x 2"
G - Lintel	2	$\frac{1}{8}$ " x $\frac{1}{2}$ " x 4 $\frac{1}{8}$ ", with 30° angle at each end
H - Rafter	5	$\frac{1}{8}$ " x $\frac{3}{8}$ " x 3", with 30° angle at each end

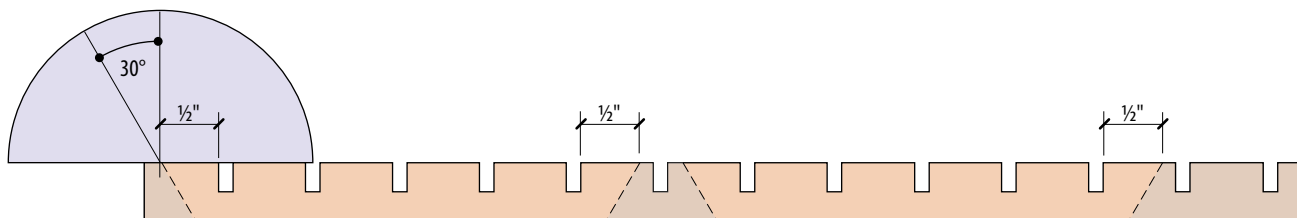


Figure 2.1—Figuring protractor placement for cutting lintel ends

(Shown smaller than full size)

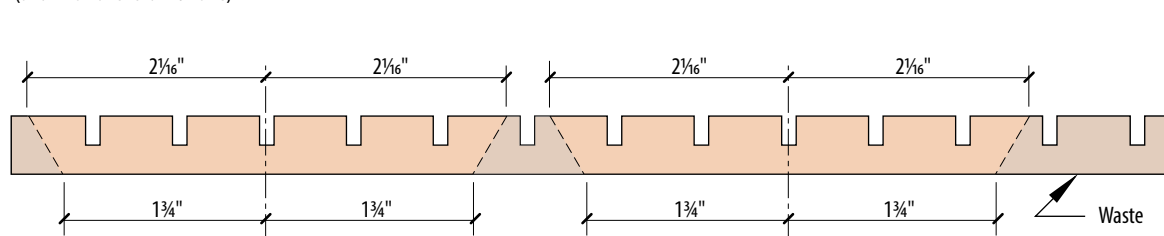


Figure 2.2—Measurements for cutting lintel ends

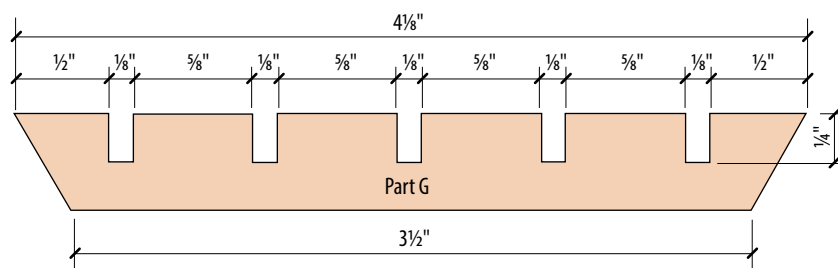


Figure 2.3—Finished lintel

(Full size)

use the legs assembly, as shown in **photo 9**.

Cut two leg stops (F), each 2" long, from $\frac{1}{8}$ " x $\frac{1}{8}$ " stripwood. Place the lintel assembly upside down on your work surface and attach the leg stop to it, as shown in **photo 10**. The leg stop gets glued to the inside faces of the end rafters and should be flush with the bottom of the rafter. Use a small clamp to hold them while the glue sets (see the clamp in **photo 10**). The lattice assembly (**photo 11**) is now attached to the legs assembly, as shown in **photos 12 and 13**.

Now the legs assemblies and the lintel assembly can be joined, with the aid of the guide block. Position the legs assemblies at the ends of the block, using a rubber band to hold them in place, as shown in **photo 14**. Apply glue to the top of legs assemblies (**photo 15**), then place the lintel assembly on top, aligning the end rafters with the legs assembly, as shown in **photo 16**. Place a small weight on top while the glue sets (**photo 17**).

Construction of the arbor is finished. You can now apply any kind of finish you want or let the natural finish suffice. ▀

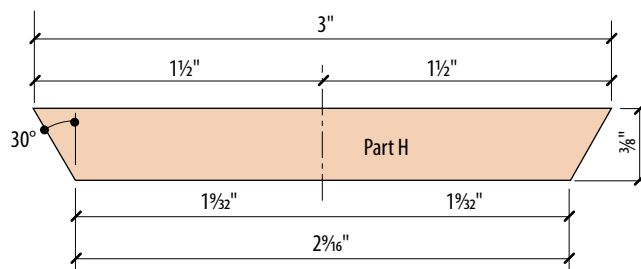
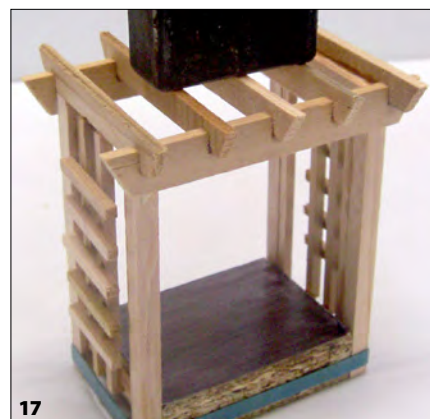
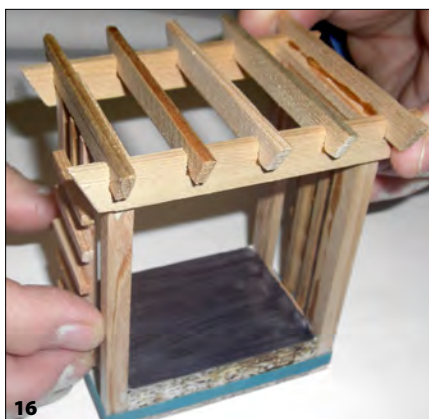


Figure 3—Rafter



Collecting full-size-locomotive catalogs

One of my side interests in model railroading is collecting catalogs and brochures from the steam era. I use these for modeling research but I also get a lot of enjoyment out of them just because they're such cool old books.

The oldest example in my collection is the 1871 general catalog of locomotives from Baldwin Locomotive Works. Labeled "First Edition," it has a relatively plain cloth binding, with the name of the company embossed on the front and spine in gold leaf. Inside, the pages are printed in black text with a red decorative border line around every page. Although this may seem pretty ritzy by today's standards, it's not particularly fancy for the period.

Most important are the 16 locomotive illustrations, each representing a different wheel and tender arrangement. These are not halftone magazine reproductions of fuzzy enlargements from 35mm negatives, either. They're actual photographs—contact prints, made directly



Can you spot the reproductions in this lineup of locomotive catalogs in the author's collection?

from a 5" x 8" negative onto a 5" x 8" piece of paper, then pasted into the catalog by hand. A typical magazine or laser printer produces halftone images with up to 600 dots per inch. An albumen photo print has a resolution of around 12 million dots per inch.

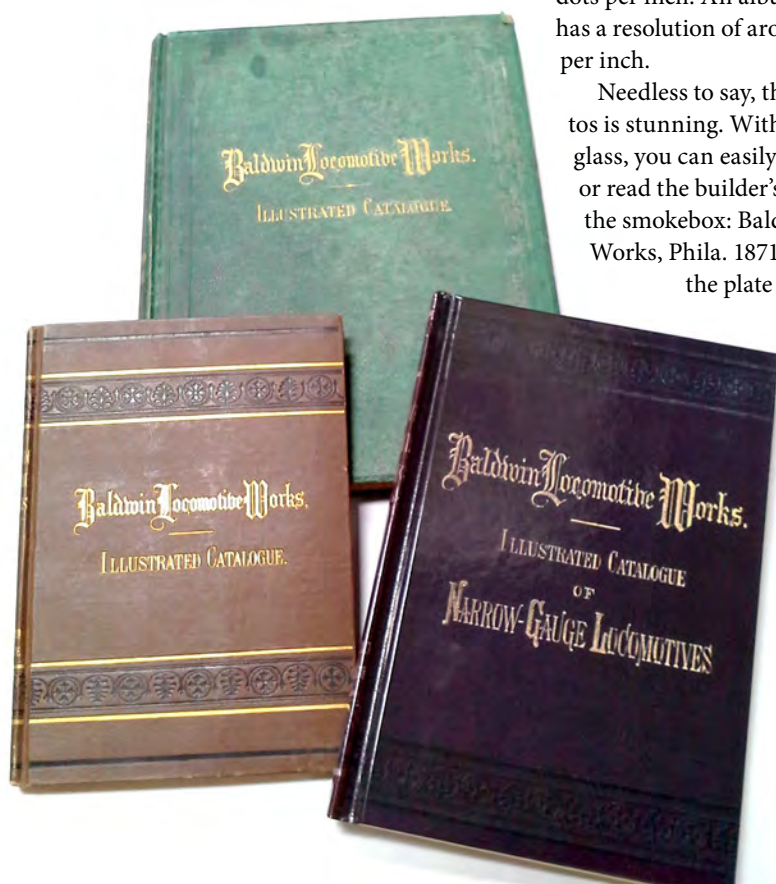
Needless to say, the detail in the photos is stunning. With a magnifying glass, you can easily count all the rivets or read the builder's plate on the side of the smokebox: Baldwin Locomotives Works, Phila. 1871. No. 2459. That's the plate on the side of *Montezuma*, the Denver & Rio Grande's first locomotive,

shown on page 124. In 1871, narrow-gauge railroads first saw the light of

day in the US, so *Montezuma* was quite a novelty. And this was one of the first commercial catalogs to be illustrated with real photos, according to one book dealer I consulted. This Baldwin catalog was groundbreaking in several respects.

Halftone printing, used in everything printed today, wasn't really perfected until the 1880s. Thus, the Second Edition Baldwin general catalog, from 1881, came in two versions: the 8" x 11" book still had tipped-in photo prints, while a 5.5" x 8" "pocket version" was printed in a single color, with photoengraved illustrations (not quite photographic quality but better resolution than halftones). Companies were always experimenting with less expensive and labor-intensive technology.

In the end, it must have been too much. Baldwin didn't put out another general catalog until 1908. By this date they had become the largest corporation in the world so these two catalogs represented their products to the world for over 20 years. However, they supplemented the general catalog with pamphlets and specialized catalogs, the most elusive of which is the Third Edition, the 1885 *Illustrated Catalogue of Narrow Gauge*



Baldwin's 1871 illustrated catalog, their 1881 pocket catalog, and the 1885 narrow-gauge facsimile.



Early catalogs had real photos pasted in.

Locomotives. This was still in the 8" x 11" format, with pasted-in real photographs, this time solely of narrow-gauge engines. What a treasure for railroad historians and, especially, narrow gauge fans!

For reasons I have been unable to discover, Baldwin either produced a vanishingly small number of this catalog or almost all of them were thrown away when narrow-gauge railways went bankrupt and dumped all their records. In any case, there are only four or five copies in libraries around the United States, and these are in the rare-books collections of universities like MIT or UC Berkeley. I have every hardbound Baldwin catalog the company produced except this one. What are the chances I'll ever be able to find one and complete my collection? Zero.

But there is a next-best solution. Since the early 2000s, many libraries have been digitizing rare books and putting them on the Internet. One of them is the elusive 1885 Baldwin narrow-gauge catalog! (A good place to start looking for such scans is <https://archive.org>)

I now have scans of UC Berkeley's catalog in several different formats: PDF, single-page JPEG with lossless compression, and raw JPEG. None of these scans are nearly as sharp and clear as the original (you can't read the serial numbers on the builder's plate, alas) but the photos are fairly clear and I can easily see what the locomotives looked like. The scans are free for personal, non-commercial research purposes. Now if I could only figure out a way to make a book of it.

That's where self-publishing comes in. Traditional book publishers, it seems, may

be headed the way of the television repair shop (toward extinction). But print-on-demand (POD) companies are springing up all over. These websites allow you to upload your book content, then get hard copies printed and mailed to you. So, I made myself a printed copy of the 1885 catalog. I used *Lulu.com*, which will produce quantities as small as one book, but there are other similar services (search the web for "print on demand"). Not all of these services will produce hardbound books, however, which I wanted.

To create the facsimile catalog, I took the scanned file and uploaded it to the POD website, then I did some cleanup work (deleting library stamps, getting facing pages set up correctly, etc.). To make the image for the hard cover, I used the front and rear covers from the PDF but there was no scan of the spine. Luckily, the binding of the small 1881 edition was the same color, so I was able to scan that and use it to create the book cover. Because the resolution of the scanned file was somewhat low, I chose not to produce a full-size facsimile, but rather I made a



Baldwin's 5,000th locomotive, from the 1881 catalog.

6" x 9" version that somewhat ameliorates the flaws in the digitization.

The whole project cost me several hours of computer time and about \$30 for the actual printed book. A label in the UC Berkeley copy indicates that they bought it for \$3,000 so, even if I could find a copy for sale, the chances that I would actually end up buying it are still zero.

I feel quite pleased with my project. It cost me 1% of what an original would have, but I have gotten far more pleasure out of it than that small percentage.

Of course, there are others who had the same idea and they peddle these printed-on-demand public-domain books all over the Internet. If you're looking for a locomotive trade catalog and find it available (with minimal information) for what seems to be a bargain price, consider that you could do it yourself, probably to higher quality, and possibly for less. **A**



Vance Bass has been in large-scale model railroading since the mid 1980s, continuing a life-long fascination with trains. His main interests now are live steam and scratchbuilding. He is retired from software and systems engineering and is currently a part-time musician.



Kitbash a watch tower for your park rangers

A Lionel beacon tower provides the basis

by Neptali Martinez | Douglaston, New York | PHOTOS BY THE AUTHOR

Materials

1 DeckoRail 4" x 4" copper pyramid post point from Home Depot (for the roof)

¼" Plastruct styrene angle (for the corners of the cabin)

⅛"-thick plastic sheet (for cabin sides)

½"-long copper nails (2 needed to attach the roof to the cabin walls)

⅛" diameter x ½" rustproof screws (2 needed to secure the cabin to the tower; 2 to secure the tower to the base)

Plastic glue (to join the cabin walls)

1 piece of 6" x 6" x 2" pressure-treated lumber, painted gray (for base of tower)

NOTE: The nails and screws are from the stock I usually keep on hand so the dimensions are approximate. When making the holes, I choose the drill-bit size accordingly.

The finished park-ranger tower, keeping the forests safe on the author's garden railway.

Our garden railway typically generates enthusiastic responses from our relatives. One of the first things they do when they visit is to gravitate toward the railway to see what's new and to see what trains are running that day. From time to time, some of them bring me "train related" presents. The items are always interesting, but the scale is often wrong. Since you are not supposed to look a gift horse in the mouth, I always accept them graciously and am happy that they thought of me from a "train" point of view.

That is how a beautiful Lionel N° 494 beacon tower came into my possession (photo 1). Now, I am fully aware not only of the scale, but also the collector value of Lionel pieces. Therefore, for a while it just sat in

my workshop until I could figure out a way to maintain the Lionel pedigree but also give it purpose in my large-scale railway.

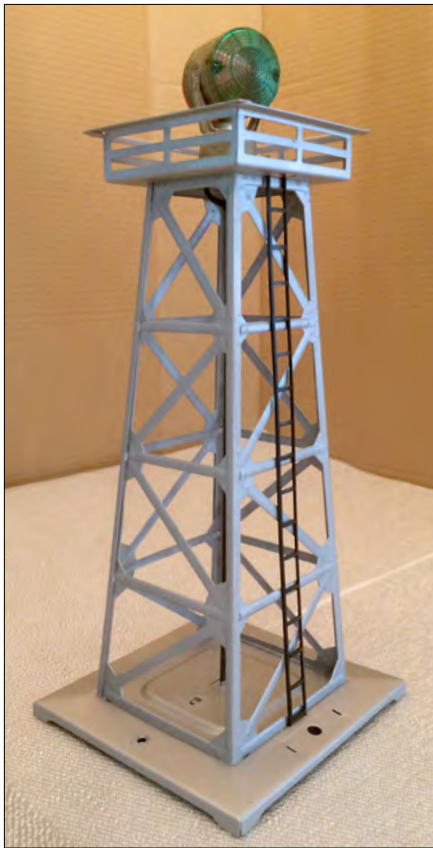
A park-ranger watch tower came to mind. The challenge was to keep it 100% Lionel but also change it so it would fit into my garden railway. The solution was to leave the tower as it was, remove the rotating red and green beacon head (it was already removable), and build a clear cabin with a roof that would fit on top of the tower.

I don't plan to leave this tower outside permanently but I wanted all the materials to be as rustproof as possible. All of the supplies (see the list of materials) can be seen in photo 2. You can substitute a copper roof for aluminum and copper nails for galvanized, if you wish.

Building the cabin

I started by marking and cutting the four cabin walls. They are trapezoidal in shape, and while they all are 3" high, two walls are 3½" wide on top and 2¾" wide on the bottom (photo 3 shows the pattern for this wider wall), while the other two are 3¼" on top, and 2¼" on the bottom. This allows the cabin to be exactly square—3½" on top (the actual size of the DeckoRail cap is 3½" square) and 2¾" on the bottom, on all four sides, to fit the tower's deck.

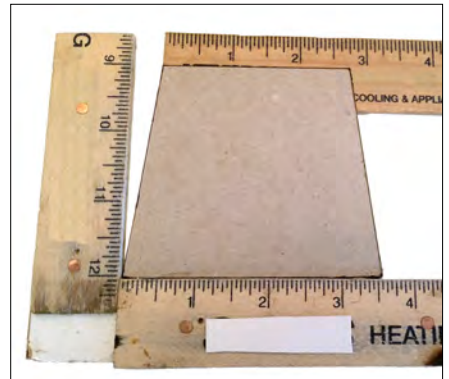
I had a piece of leftover ⅛"-thick Lexan on hand but any similar acrylic



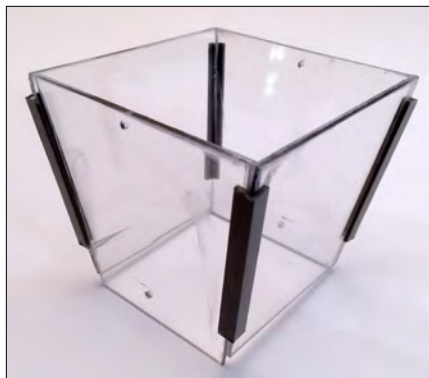
1. This Lionel N° 494 beacon, a gift from well-meaning relatives, provided the basis for the author's ranger tower.



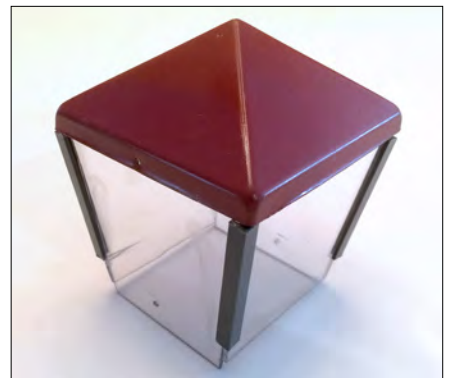
2. Necessary materials for making the ranger's cabin (see the list of materials).



3. A trapezoidal pattern for the larger of the side walls.



4. The assembled clear-acrylic walls and styrene corners.



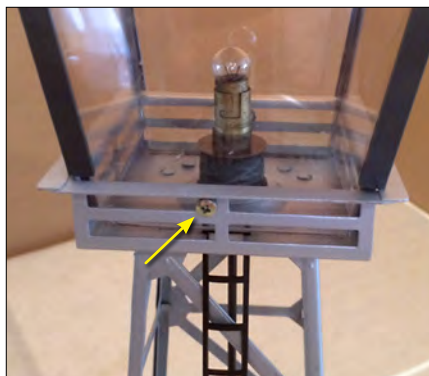
5. The painted roof cap has been applied, held in place by copper nails.

sheet would do. I found that my plastic glue worked with Lexan, so the corner joints fused nicely with a coat of the glue. The corners are finished with ¼" Plastruct angle. In my case, each piece is 2¼" long. I cut these pieces once the cabin walls had been glued together and I had test-fitted the cabin on the tower with the roof on. This gave me the actual length of the corner pieces I needed. I attached the corners to the cabin with plastic glue (**photo 4**).

For the roof, I painted the DeckoRail cap red (www.deckorail.com). If you use a copper piece, it could be left natural to form a patina. If you use an aluminum cap, it can blend with the rest of the tower (if yours is silver). To attach the cap, I made two ⅛" holes on opposite sides of the rim of the cap. Then, placing the roof on the cabin, I marked and drilled two holes on the corresponding cabin walls. The copper nails fit snugly, which gives me quick access to the inside if needed (screws could be used but the nails are less obtrusive—**photo 5**).

Assembly

To attach the cabin to the tower, I drilled two ⅛" holes on the lower portion of the



6. Screws attach the cabin to the tower. The yellow arrow points to a screw, which did not damage the original tower.

cabin walls on opposite sides. The actual location was dictated by the railing on the tower. I did not want to damage this railing, so the holes in the plastic walls are located just off the railings. The heads of the screws catch the railings enough to securely anchor the cabin (**photo 6**).

Finally, I attached the tower to the wooden base, using the existing holes in the base of the tower and drilling matching holes on the wood. This base is hefty enough to keep the tower upright in strong winds (**photo 7**).

To maintain the Lionel pedigree, I left



7. The tower, screwed to its wooden base.

the light socket as is. Perhaps in the future I will add a solar unit that attaches to the roof.

Regarding the scale difference, I'm using perspective to get away with it. In placing the park-ranger tower on a far corner of the railway, atop a mountain formation, the finished tower blends nicely with the rest of the scenery (see the **lead photo**). ▴

READERS' GALLERY

— Garden-railway scenes from around the world —



JOEL HARRISON



JIM BASILE

ABOVE: A trio of GP-7s with a short-manifest freight transverses a steel girder bridge in the Feather River Canyon area of Joel Harrison's railroad in Sacramento, California. Higher up, the original California Zephyr continues its trek eastward to Chicago. Passengers are treated to the beautiful vistas of the canyon during the daylight hours. The train is comprised of three diesel units and 11 cars, just as it was during the 1950s.

LEFT: Jim Basile of Lunenburg, Massachusetts, scratchbuilt this model of Boston & Maine's Flying Yankee. The train is built of wood and plastic, using techniques outlined in an article about building passenger cars for the Freedom Train in a back issue of *GR* (August 2013). This train took a whole New England winter to build, which Jim felt was a great way to keep the hobby alive during the cold months.



JOHN SAUNDERS

LEFT: “Warrior at rest.” This USA Trains SD40-2, with Airwire and Phoenix sound installed, was modified by John Saunders of Greenwich, Connecticut. The paint has been faded with Vallejo acrylics from an airbrush and weathered with water-soluble oil paints. Additional parts are a mix of scratchbuilt and commercial. The ditch lights and strobe lights function via Airwire.

BELOW: Spring had finally reached the Northeast and passengers got a pretty ride as Aristo-Craft Pacifics N’s 2410 and 2452 hauled a heavyweight Daylight train over Greenwich River Falls, past flowering Blue Carpet sedum, geraniums, thyme, impatiens, iris, and rudbeckia, as they made their way through Connecticut on Karl and Joan Eisleben’s Southern Pacific in Old Greenwich.

Send your photos to Readers’ Gallery:
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Denver, CO 80246, USA

or email them to:
mhorovitz@gardenrailways.com



KARL EISLEBEN

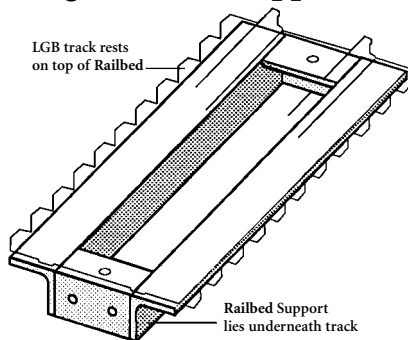


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Nuggets from Denver



1. A Lake George & Boulder locomotive with a string of varnish steams past a stratified white cliff with creeping cinquefoil covering the hill above and lower left. PHOTOS BY THE AUTHOR



2. The same varnish with a different locomotive on a different line chugs through a lovely valley past an encampment of entertainers.

We've all read and heard it said that garden railroads are as different as their builders/owners. It's that variety that makes our hobby so fascinating, with a never-ending source of ideas and inspiration. That was quite evident to me on seeing just a few gardens during the National Garden Railway Convention tour in Denver last summer. I've selected several photos of plants from that tour to share with you, both for information and inspiration. My selection depended on three factors: the uniqueness of the plants; qualities that make the plants suitable for large-scale railroads; and the placement of the plants (their enhancement of the surrounding landscape, their working well with complementary plants, or their use as isolated specimen plants).

Photo 1 is a scene in Tom's Train World, built by Tom and Trinda Bishop. What caught my (gardener's) eye was a lovely groundcover, cinquefoil or creeping potentilla (*Potentilla neumaniana* 'Nana', USDA Zones 4-8) used to create a hilltop thicket with an echoing patch on the other side of the track. I thought this scene was striking because of the repeated



3. A mixed-freight consist creeps up a hill past a farm. White-flowering sedum fills the foreground and continues up the hill.

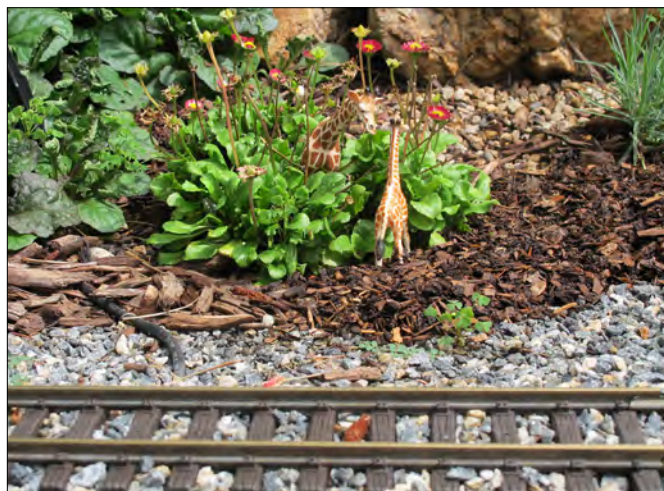
use, on both sides of the track, of the groundcover and white stonework. The stratified stone is natural and creates a believable limestone or chalk cliff. Creeping potentilla grows 3-4" tall and spreads to form a dense groundcover that effectively smothers weeds. Its butter-yellow flowers bloom heaviest in spring and early summer but continue sporadically until

fall. It grows in most soils, with full sun to part shade. It is drought tolerant and deer resistant. As its name implies, it is creeping, and has a reputation for aggressiveness. However, it never got out of hand for me on my former garden railroad.

Photo 2 is a view overlooking a hilltop, into a valley where an encampment of entertainers has set up a tent near the



4. Multi-colored and multi-textured sempervivum (front and sedum rear) fill this loop and complement the stone monument.



5. Mama giraffe and youngster have chosen this clump of English daisies in which to hang out, much to the amusement of passing train crews.



6. A field of corn (actually cat grass) is well tended on this farm.



7. A particularly spiky cactus (dagger club cholla) grows trackside.

track to attract the interest of passengers on passing trains. This vignette is in the Colorado & Northwestern Railroad of Joel Waszak and Martha Miller. The variety and scale of plants in the valley are effective in creating a believable scene. The blooms on the near hill are those of lemon thyme (*Thymus citriodorus*, Zones 5-8). The foliage of this plant is barely visible among the dense growth of succulents and daisy-like flowering plants. Lemon thyme grows as a sub-shrub about 4" tall. It prefers full sun and well-drained

soil, although it is not picky about the soil type. It is a perennial that is evergreen in milder climates and is drought and deer tolerant.

What appealed to me in **photo 3** was the consistent use of a white-flowering sedum, heaped in a sprawling drift in the foreground and continuing up the hill beyond the train and small house. The sedum, or stonecrop, is likely a white-flowering *Sedum album*, hardy in Zones 4-9, growing 3-4" high, and blooming in early to mid summer. Its green foliage

often turns reddish in winter. This scene was on the San Miguel Southern Railroad of Dave and Jean Gross. Succulents feature prominently on this replica of southwestern US landscape. Note in the photo the reddish sempervivum (hen-and-chicks) just below the flatcar with three wooden vats.

In **photo 4**, the location is spelled out on the rock monument and again illustrates the abundant use of succulents on Dave and Jean Gross' railroad. Succulent plants come in a wide variety of colors, textures, sizes, and shapes. The consistent use of this group of plants, complimenting the red stone monument, is quite attractive and perfectly fills this loop on the railroad.

Plants can also be used in a whimsical setting, as illustrated in **photo 5**. The clump of spoon-shaped leaves with red flowers sticking up on lollipop-like stems

would be whimsical enough but is made even more quirky by the addition of the two giraffes. Vignettes like this can make some visitors chuckle as they pass and others get down on hands and knees for a closer look (the latter was me). The plant is an English daisy (*Bellis perennis* 'Bellissima Red', Zones 3-9), which grows in sun or part-shade and is not picky about soil as long as it has some moisture. The flowers reach 6-7" high and bloom in late spring into mid summer. This vignette appears on Curtis Jones and Judith Seaborn's John Galt Line. I have no information on where they got the giraffes.

The credible farm-scene replica in **photo 6** is also on the John Galt Line. Curtis has found that cat grass (common oats [*Avena sativa*, a cool season perennial] and sometimes barley, flax, or wheat) can mimic a field of corn. He plants the seeds in rows in the miniature field and trims the plants when they get too tall. This photo shows how well he timed the planting so that the rows of miniature corn would be just the right size for the convention tour.

The prickly little number in **photo 7** is a dagger club cholla (*Grusonia* [also *Opuntia*] *clavata*, Zones [5, 6] 7-10). Hardiness in Zones 5 and 6 depends on very dry, well-draining soils in winter. Staying under 3-4" high and spreading to make a clump 12" or more across, it makes a great desert plant for Southwestern railroads. It prefers full sun but will tolerate partial shade. It's drought tolerant but likes to have regular small drinks of water in the growing season. Bright-yellow flowers appear on 6" stalks in mid-summer. This photo was shot on The John Galt Line but I saw the same plant in a nice setting in Tom's Train World.

Photo 8 (from the John Galt Line) shows a nicely replicated orchard using lavender plants (*Lavandula* sp., Zones 5-9). The plants are spaced as trees would be in an orchard and the placing of a scale-size tractor in their midst adds to the credibility of this scene. Lavender prefers well-drained soil with occasional watering, and is drought tolerant. It grows best in full sun.

The setting in **photo 9** is a delightful interplanting of sweet alyssum, flowering



8. This "orchard" is created with small lavender plants.



9. A creative mix of flowering plants graces this rocky site.

hen-and-chicks, and isotoma. The white flowers belong to the alyssum (*Lobularia maritima*, annual in Zone 5), the red flowers are from the hen-and-chicks (*Sempervivum* sp., Zones 3-10) and the blue flowers are of the blue star creeper (*Isotoma fluviatilis*, Zones 5-9). All the plants in the photo are nicely sited in a

rock-garden setting, which softens and blends the disparate rocky elements. The railroad is appropriately named the Rocky Mountain Railroad and was built by Gary and Dodie Carlson.

I am indebted to these folks for letting me use photos of their labors of love to share with you, our readers. 🐘

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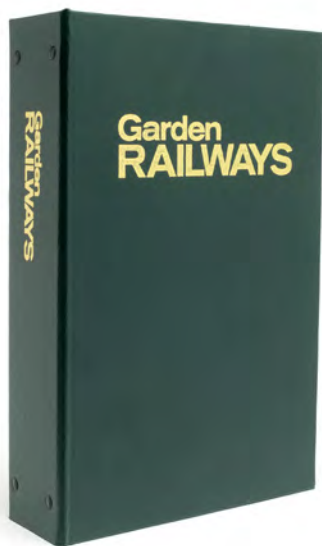
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RAISING STEAM

Four seasons of live steam: Winter



Sgt. Murphy plows the snow on the author's garden railway near Toronto, Canada.

Over the next few columns, I'll be taking a look at various aspects of the live-steam segment of our hobby over the four seasons, starting with winter in this issue. For those in northern climates, running steam locomotives outdoors occurs much less often in the winter months. The urge to retreat into the warmth of the workshop is stronger than the desire to fire up a locomotive outside on most cold, damp winter days. Nevertheless, there are lots of ways to keep the live-steam portion of hobby active and interesting during this season.

Those fortunate enough to have access to an indoor live-steam track (perhaps in a garage or basement) can certainly continue to run locomotives throughout the winter months and not be bothered by the weather. When running indoors, always ensure that there is adequate ventilation; a nearby carbon-monoxide detector is a must. It's important to have a good-quality fire extinguisher or two handy, as well. An indoor layout is a good excuse to invite some fellow live steamers over for an steamup. It's a great way to socialize with like-minded


folks during those months that are often lacking in outdoor steam events.

Speaking of events, the grandfather of them all is the Diamondhead International Small Scale Steamup, which is held each January in Diamondhead, Mississippi. This annual event draws close to 200 live-steam enthusiasts from all over the world for a full week of fun.

Of course, those rare winter days when you do brave the weather to fire up a locomotive outside do come with challenges. It takes much more time and energy to boil water so runs will likely be shorter. Those running gas-fired locomotives will need to switch from pure butane to isobutane or an isobutane/propane mix to have adequate gas pressure. If your locomotive's gas tank in the tender has a water bath, you will certainly want to fill it with warm water to help keep the gas warm and the gas pressure up.

Also, remember that battery performance deteriorates in cold weather. If you're running via radio control, it is important to make sure that receiver and transmitter batteries are fresh or fully charged before a run.

Those of us who do run on cold winter days are rewarded with impressive exhaust plumes that seem to hang in the still, crisp winter air for quite a long time. If you live in a region that gets snow, perhaps the conditions will be favorable for doing some track plowing by steam.

Finally, there are plenty of live-steam-related activities that can be done in the warm workshop over the winter months. It is an ideal time to tackle those issues that crop up during the more intense running in the other seasons, that were put on the "when I get around to it" list. These projects can include minor maintenance, such as repacking a leaking sight glass, adjusting a safety valve's setting, or replacing worn eccentric rods. It is also a good time to tackle major projects, like adding detail parts, lettering, or lining to your locomotive to customize it. If you are looking for new motive power, winter months are a great time to assemble a new locomotive from a kit so that it will be ready for service when spring finally rolls around. Given all these options, winter certainly does not have to be a time when the live-steam hobby goes into hibernation. 

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EVENTS

10-17 January, 2016: Diamondhead International Small Scale Steamup, Diamondhead, MS • Pat Darby, K5pat@bell.south.net, 985-867-8695 • Terry Smelser, onyx1955@aol.com, 985-373-7593 • www.Diamondhead.org

12-13 March, 2016: Midlands Garden Rail Show, Warwickshire Exhibition Centre near Leamington Spa, UK • Avril Spence • 01926 614101 • avril@meridienne.exhibitions.co.uk • www.largescalemodelrail.co.uk

20-25 June, 2016: "Makin' Tracks to the Midwest" Big Train Operator Club Convention, La Porte, IN • Bob Somogyi, btoeditor@sbcglobal.net • 630-562-5420 • www.bigtrainoperator.com

4-10 July 2016: 32nd National Garden Railway Convention, San Francisco Bay Area • <http://ngrc2016.org>

13-17 July: 20th National Summer Steamup, Lions Gate Hotel, McClellan (Sacramento) CA • steamup@summersteamup.com • www.summersteamup.com

Future Garden Railway Conventions 2017: Tulsa, OK—www.thinktulsa17.com

2018: Atlanta, GA—<http://ggrs.info>

Event notices are published at no charge. We will accept listings that pertain to predominantly garden-railway or small-scale-live-steam events. Listings that reach us before our deadline and fit the space available will be published. Send your listings to Garden Railways, PO Box 460222, Denver CO 80246, or e-mail them to mhorovitz@gardenrailways.com ➤

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This time I have some great prototype-railroad videos for you, one modern and one historic. Let's get started!

If you're familiar with southwest United States railroads, you will have heard of the Tehachapi Loop on the former Southern Pacific line in southern California. This video of it, made by a quad-copter drone, is one of the coolest train movies I have ever seen. It takes this BNSF container train eight minutes to navigate the multiple twists and turns of the Loop and the aerial view is spectacular. If you're a fan of Foghat's "Slow Ride," turn up your speakers; otherwise, turn them way down because the soundtrack is pretty loud. View it here: youtu.be/nfqj1KbF4_E

If you're wondering why these drones are suddenly popping up everywhere, the answer is simple: to improve garden railroading. Well, maybe that's not the primary reason but it's certainly an important side effect. The drones depend on three things we can put to good use in our models: digital radio control, high-efficiency electric motors and, more than anything, high-density batteries. Combine these technologies under four rotor blades and you have a drone that will hoist a high-definition camera hundreds of feet in the air for long periods. Put them under the shell of a 1:32-scale diesel locomotive and you have a long-running, glitch-free heavy hauler for your railroad. Everybody wins!

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Custom hopper car

When World War I broke out, the US government formed the United States Railroad Administration (USRA), which oversaw the operation of the railroads in the US. As part of this effort, the USRA came up with many standard designs for locomotives and rolling stock. These designs were then built by the railroads and locomotive/car builders, not only during the war years, but for many years afterward.

VITAL STATISTICS

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 Dimensions: Length, 12½"; width, 3⅞"; height, 4¾"

One such design was for a two-bay steel hopper. These cars were built by the thousands and were used virtually everywhere in the US by pretty much every railroad. Many survived in regular service through the steam age and into the early diesel era. They have a capacity of 55 tons.

Piko's model of this car is not new to large scale. In fact, it comes from the old MDC molds, when it went into production in the early '90s. I found drawings of a USRA two-bay hopper car online, and Piko's car matches favorably. For the rivet counters, the number and spacing of rivets is actually accurately reproduced. The model measures about two scale feet longer and a foot taller than the drawings I found, when measured at 1:32 scale, but the width is spot on. I can't say for certain the drawings I found were for the specific prototype for this car (though the rivets match), and I've read of two-bay hoppers built to this or similar designs ranging in length from 30' to 33'.

The car is plastic, with plastic trucks and wheels, which are gauged within NMRA/G1MRA specs. The trucks have

hook-and-loop couplers mounted on them; no other couplers are supplied. There is no brake detail modeled into the car, nor is there any door-latch detail. Steps are molded into the side of the car, as opposed to being separate parts.

The car is lettered for the Chicago & Northwestern Railroad. This is a custom paint job done especially for Reindeer Pass. The car is an attractive green, with the C&NW logo and reporting marks. Lettering is crisp, easy to read, and the style is consistent with other C&NW hoppers that came up in a Google search. Reindeer Pass offers four different road numbers in this series.

It's hard to imagine a railroad without hopper cars and these do not disappoint. There's something inherent in a long coal drag that just screams "railroad," and these cars would certainly make a fine addition to the train. —K. Strong

Online extras

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PROS and CONS

PROS: Good fidelity to prototype; crisp lettering

CONS: Missing details, like brake cylinders and door latches

Boost your signal

I have reviewed two wireless receivers designed to run generic DCC decoders in an onboard, battery-powered environment. The Airwire Converter (Feb. 2014 GR) is designed for low-current applications but you can use any of the 17 available Airwire frequencies to communicate with it from the Airwire transmitter. The Tam Valley Depot DRS-1 receiver (Oct. 2015 GR) is a higher-current unit but is limited to only one Airwire frequency. The latter is actually a combination of two Tam Valley Depot products; their wireless DCC receiver and their five-amp booster. What would happen if I took their five-amp booster and connected it to the Airwire Converter? That would give me the same higher-current capacity as the DRS-1 but allow me to use all of the Airwire frequencies.

I bounced this combination off the manufacturer, who agreed that it would work and told me how to wire things up. I was doing a battery installation on a friend's LGB Forney already equipped with a DCC decoder. He wanted a generic battery car that could be used to power this (or any) decoder-equipped locomotive via a simple two-wire connector. He uses Airwire's controllers so this was a great chance to try this combination.

In the DCC world, a "booster" is essentially an amplifier. It takes the DCC signal from a command station and combines it with an external power supply to provide power to the rails. This particular booster is rated at three amps continuous

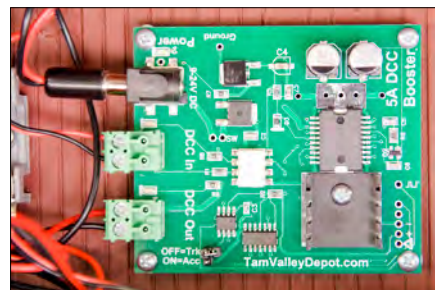
operation, and can handle up to five amps, with circuit protection that trips at 5.6 amps, according to the literature.

You would usually use a booster to power a specific block of track. A three-amp continuous rating is probably a little low for most large scale, track-powered DCC applications, where 10 amps is more the norm for booster outputs to block of track. However, this booster is well-suited for use in a wireless onboard environment, where it should be adequate for all but the most power-hungry locomotives. Compared to the receivers, the booster is fairly large—3" x 2½" x ½"—but is still small enough to easily fit in most locomotives or a trailing car. It has three connections; DCC in, DCC out, and a coaxial DC power socket.

The power input must be DC. The manual recommends a voltage range between 12–18V, while the writing on the booster itself suggests a range from 9–24V. Voltage input is rated at 40V maximum, though this far exceeds the capacity of most DCC decoders, so you will want to make sure your input voltage to the booster is within the limits of the decoders it will be powering—typically less than 24V.

The DCC signal input can be anything from 5–24V. Note that this input voltage has no impact on the output voltage, which is isolated from the power coming from the power supply. The booster essentially reads the DCC signal coming in on the DCC input and applies it to the DC voltage coming from the power supply. The DCC output then goes to the rails (for traditional track-powered installations) or gets wired directly to the decoder for on-board installations.

Installation of this board is simple. For



use in a battery powered, wireless-DCC environment, all of the electronics are powered from the same battery, so the Tam Valley Depot booster and Airwire Converter both take power from the 14.8V battery I'm using in the power car. I used a coaxial power plug to provide power to the booster, since it already had the socket wired in (size "M" on the plug). The center is positive. Next, I ran a pair of wires from the DCC output of the Converter receiver to the DCC input of the booster. All that was needed was to run the DCC output of the booster forward to the decoder in the locomotive.

Once installed and tested, I took the locomotive and power car out for a proper shakedown. Because the booster just takes the output of the receiver and passes it to the decoder, there's little to actually "test," except to make sure it did what it was supposed to do regarding passing signals from the receiver to the decoder, which it did without issue. I could not get the locomotive to draw more than five amps, to test the circuit breaker on the board.

I think the primary use for this board for large-scale modelers will be in battery-powered applications. The question then becomes, when is it advantageous to use this board? The key strength of this booster is that it's independent of specific transmitter/receiver technology. As long as the receiver outputs a DCC-compliant signal, this board will boost that signal to a level suitable for most large-scale locomotives. I think wireless, battery-powered DCC is an emerging field, and the lion's share of the development will likely be in the smaller scales with lower current ratings. This board allows us large scalers to use that emerging technology without having to wait for manufacturers to make boards with high-current capacity just for us. —K. Strong

VITAL STATISTICS

5-amp (peak) DCC Booster

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Price: \$54.95

Website: www.tamvalleydepot.com

Five-amp DCC booster; can be used with traditional track-powered DCC systems or in wireless, battery-powered DCC environments. Dimensions: 3" x 2½" x ½"

PROS and CONS

PROS: Works with the DCC output of any compatible DCC-command system or wireless DCC receiver

CONS: Three-amp continuous rating may be low for typical large scale, track-powered DCC railroads running multiple locomotives

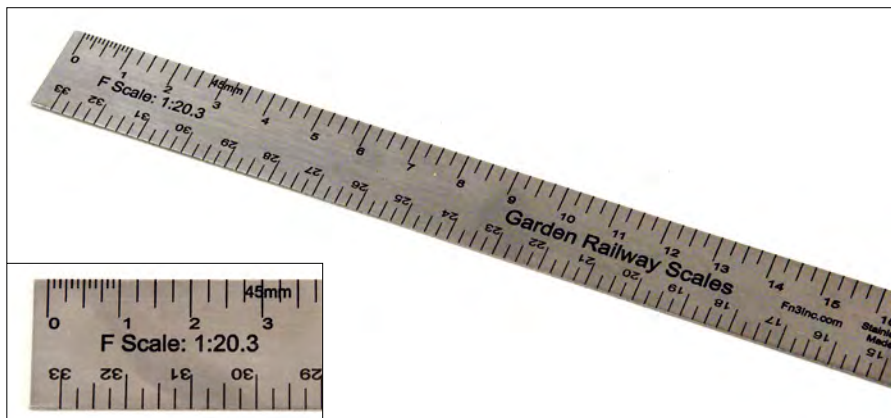
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i. Percent paid (15c divided by 15f times 100)	99.13%	99.41%
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PRODUCT REVIEWS



An aid to scratchbuilders

If you are a scratchbuilder and you work to one of the common garden scales, an accurate scale rule is an invaluable tool.

There have been many of these on the market over the years, some made of plastic, some of aluminum. The scale rule being reviewed here is a solid, heavy product made of .060"-thick (nearly 1/16") stainless steel.

Four different scales are featured, one along each edge. These include 1:32, 1:29, 1:22.5, and 1:20.3. On one side, the 1:20.3 scale is designated "F Scale," while the 1:22.5 scale is called "G Scale." These designations are both correct. However, on the other side, 1:32 scale is called "1 Gauge" (it is actually "1 scale"), while 1:29 scale is called "2 Gauge," which is just incorrect. (This is a scale, not a gauge, and it has no designation beyond 1:29. N° 2 gauge actually refers to a track gauge that is 2" wide, which was popular in the 1920s and '30s.) These are my only complaints about this product.

A little work with a pair of calipers and

a calculator showed that the divisions on each scale are spot on. The numbers are large enough to be easily read. The first scale foot is divided into inches (which is all you need). With a good eye, you could easily work to half a scale inch in any of the offered scales. On each of the scales is a line designating 45mm (gauge dimension for N° 1-gauge track). I didn't find these to be particularly useful but they didn't do any harm either.

When doing model work, it's convenient to have a single tool that can be used for both measuring and as a cutting guide. Plastic rules don't work well for this, as they are soft and, once the knife nicks them, they become less than useful as cutting guides. Not so this rule. Being heavy stainless steel, the edge forms a perfect cutting guide. It is smooth and straight and there's no chance you'll nick it with a knife blade. I'd like to have seen a hole in one end so that the rule could be hung on a nail when not in use but this could be easily remedied by the user, if desired. This is a well made, useful tool that would be at home in any modeler's tool box. —M. Horovitz

VITAL STATISTICS

Scale rule
Fn3Inc.com
PO Box 281
Boardman OR 97818
Price: \$29.95 + \$3.07 s&h
Website: <http://fn3inc.com>

Heavy, stainless-steel scale rule; four different scales; 18" long x 1 1/4" wide

PROS and CONS

PROS: Well-made scale; lines and numbers etched into the metal; four different scales supplied; heavy enough to be used as a cutting guide

CONS: Incorrect scale/gauge designations on one side (see text)



Load that coal

Who runs mostly empty freight cars? Yeah, me too. Despite the fact that empty freight cars don't make the railroad any money, the reality for the

modeler is that loads for our freight cars are an extra step that we seldom take. If we've got flatcars, we need to accurately model all the tie-downs and supports that keep the loads secure. Gondolas and hoppers are easier to fill, but we seldom take the time to do it.

That's where cast loads can come in handy. Reindeer Pass offers cast loads for various manufacturers' hopper cars. So far, loads for the Piko/MDC two-bay hop-

per, Piko/MDC ore car, and Bachmann's tipper mine cars are available. Our review sample is for the two-bay hopper.

The coal load is made from cast polyurethane resin. It's lightweight so won't add a lot of weight to the car, nor will it make the car particularly top-heavy. The "coal" is evenly-sized, on the order of $\frac{1}{8}$ " to $\frac{3}{16}$ " per lump.

The load comes painted a dark, glossy gray. I would have gone with more of a satin black but that's easily fixed with a can of satin-black Krylon. For that matter, if you don't want "coal" in your hopper, you can paint it whatever color would be appropriate for the ore you're carrying.

My only gripe with this load is that, when you put it into the Piko/MDC hopper, it sits well below the top of the hopper. If you want it to sit up near the top edge (see inset), you'll have to add some spacers to the bottom of the load (scrap Styrofoam would work well).

The coal load measures $12\frac{3}{16}$ " long by $3\frac{1}{2}$ " wide, which is a good fit for the Piko/MDC hopper. However, it's not necessarily limited to that hopper. You can cut it down to fit other, smaller hoppers, like the Aristo-Craft/Delton wood hopper or Bachmann's 20' ore cars. I hope Reindeer Pass will bring out coal loads for the larger hoppers at some point.

All in all, this is a quick and easy way to make your railroad earn some money instead of losing it by dragging around empty freight cars. —K. Strong

VITAL STATISTICS

Coal load for hoppers

Reindeer Pass

Kidman Tree Farm

3665 NW 98th Ave

Polk City IA 50226

Price: \$9.95

Website: www.reindeerpass.com

Cast polyurethane, simulated coal load for Piko hoppers. Dimensions: $12\frac{3}{16}$ " x $3\frac{1}{2}$ "

PROS and CONS

PROS: Lightweight; waterproof; can easily be cut down to fit smaller hopper cars

CONS: Load sits low in hopper, requiring a spacer to bring it up to the top edge of the car

A new kind of hand tool

The ever-innovative Dremel company has come up with a new wrinkle for their time-honored rotary tool. This one runs off your vacuum cleaner! It's designed with a socket into which you plug your $1\frac{1}{4}$ " vacuum hose. That's all you do—then you're ready to go. The unit comes packaged with a cutting guide, which is a screw-on plastic attachment that, when used with a cutting bit, will keep the tool perpendicular to the work and a set distance from it. The guide has air-intake holes built in so the automatic dust-collection system will

still work. The tool also comes with a sanding-drum bit, a $\frac{1}{8}$ "-diameter cutting bit, a $\frac{1}{8}$ " burr, and a collet wrench.

The business end of the tool is much like any Dremel rotary tool. It uses standard Dremel collets (a $\frac{1}{8}$ " collet is supplied) and the bits can be changed by loosening the collet closer, either with your fingers or with the supplied wrench.

I tested the tool using my old Sears shop vac. I don't know what its CFM (cubic feet/minute) rating is—it wasn't on



the machine and, when looking online, I found that CFM ratings on shop vacuums are not that easy to find. Suffice to say, the more powerful the vacuum, the more

powerful the rotary tool. I plugged in the end of the hose—a simple press fit—and turned on the vacuum. Nothing happened. Then I realized I had the on/off ring set to the “off” position. I turned it on and away it went. The on/off ring can also provide a limited amount of speed

control but I didn’t find this to be too useful. In an already low-torque machine, reducing the rotational speed of the tool reduced the torque even further. I put in the little sanding drum and sanded a small piece of pine I had on hand. I quickly found that this is a light-duty machine. Dremel says it’s equivalent to their 4.8V cordless tool. I tried the cutting bit with the cutting guide and found that it worked well in very light material. It’s excellent for foam.

I found that if you overload the tool, it simply stops. No worries—there’s no motor to burn out. Once I found what the

tool could do, I was able to develop more of a “touch” for it. From then on, there were few problems. If you are looking for a machine to hog out a lot of material, this one isn’t it. This is made for light sanding, cutting, and sculpting. Within its working parameters, this tool does fine, plus it has the added bonus of built-in dust collection. The vacuum does double duty—running the tool and sucking in the dust. The work that I did during the test was virtually dust free—cool!

I thought that the tool would be clunky to use with the vacuum hose attached to it but it actually wasn’t bad. The tool itself is quite light and the hose doesn’t add that much bulk to it. The biggest drawback I found when using the tool was having to listen to the vacuum all the time.

This tool does what it’s advertised to do. It won’t do everything but if you want a tool that will do light work well and even clean up after itself, this may be the tool for you. —M. Horovitz

VITAL STATISTICS

Vacuum-powered rotary tool

Dremel

PO Box 081126

Racine WI 53408

**Check with your local hobby shop
for price and availability**

Website: www.dremel.com

Vacuum-powered rotary hand tool (#VRT1); mostly plastic construction; comes with cutting guide and a variety of accessories; requires 110 CFM (or greater) wet/dry shop vacuum

PROS and CONS

PROS: Good for light work; built-in dust-collection system is excellent; light weight and easy to handle

CONS: You have to listen to your vacuum cleaner while you’re working



Populate your railroad

Fun & Games has added 13 new figures in 1:20.3 scale to its already-extensive line of large-scale people. These include some who are apparently involved in the timber business, as they have axes or other logging tools; generic workers in work clothes; a couple of men who are evidently more well off, judging from their nicer

clothing; and a couple of unclad ladies.

These figures were sculpted for Fun & Games by Paul Douglas and Ray Lantz. The masters were then sent to China, where molds were made and the figures reproduced in resin, then hand painted. The poses of most of the figures look quite natural, even the action poses. Proportions are generally good and the paint

jobs are excellent on our review samples. As in real life, the figures are different sizes, but all seem to fit well together. All the men but one (a man with an axe) are wearing hats of different varieties—typical of the period. Facial expressions are, I felt, quite good. You can even read emotion in some of them.

Each figure is offered in two different color schemes. For instance, Cold Deck Boss (#GLOG16A & B) has red hair and is wearing a denim shirt and light-blue pants in one version, and has white hair

VITAL STATISTICS

1:20.3-scale figures

Fun & Games

PO Box 243

Jefferson City MO 65102

Price: \$12 each

Website: <http://scalefigures.com>

Scale figures from the early 20th century; each available in two color schemes; several poses available; each figure fully painted and detailed



and is wearing a red-and-white plaid shirt with denim pants in the other. This not only gives you a choice of colors but makes it possible to use the same figure in different parts of your railroad without evident repetition.

These are good renditions of typical figures that might be found on many of our turn-of-the-century railroads, and are welcome additions to the large-scale population. Fun & Games' website may or may not be up to date when this magazine comes out.

If you'd like more information on these excellent figures, or to see photos of all of them, send an e-mail to orders@scalefigures.com —**M. Horovitz**

PROS and CONS

PROS: Wide selection of poses; different classes (i.e., blue collar, white collar); neatly painted in authentic colors; good facial expressions; most poses look pretty natural; two different color schemes for each figure; some supplied with tools

CONS: One or two poses look a little strained; some standing figures may need their feet sanded to stand up straight

The Gazette on DVD

The *Narrow Gauge and Short Line Gazette* is, perhaps, the most respected model-train magazine in the US. To my knowledge, it is the oldest magazine still going under its original founder and editor, Bob Brown. Given that, it was with great pleasure that I learned that the *Gazette* is now offered in its entirety through 2014, along with the two magazines that Bob published that preceded the *Gazette*—*Finelines* and *Slim Gauge News*—on a DVD.

The DVD—actually two DVDs—contains a total of 314 magazines, 25,220 pages, and 1,828 plan drawings. Built into the program is an index searchable by title, author, or keyword. There are even written instructions for downloading the plans as PDF files, resized to the scale of your choice.

I installed the app on my Macintosh, running system OS X 10.10. System requirements for the Mac, according to the literature for the DVD, calls for 10.6, 10.7, or 10.8. Since 10.10 wasn't mentioned I was concerned that the program might not run properly, as I've had problems with other DVDs that ran on earlier OS versions but not the current. However, I needn't have worried—everything worked fine. It works on Windows computers, too; you'll need XP, Vista, 7, or 8 operating systems.

There are two ways of using the program. The first is to load the app into your computer, then look at the magazines while accessing them from the discs. This method works okay but tends to be slow. The other way is to load everything on your computer—the app and all of the

magazines. This speeds things up quite a bit but takes up a lot of space—14GB. I installed mine—the app and all of the magazines—on an external hard drive.

You can display either *Finelines*, *Slim Gauge News*, or the *Gazette*, or you can display all three magazines. They appear on the screen with the oldest at the top, or in reverse order (your choice). They can be viewed as thumbnails of the covers or simply as a list. When you double click on a cover, the magazine opens. Arrows on the left and right of the pages allow you to thumb through the magazine page by page or, if you know where you're going, you can just type in the page number. Pages can be viewed singly or as two-page spreads. There are other viewing options as well. Pages can be enlarged to a great extent and the print always remains sharp, not pixellated, while photos can be enlarged to the point where you can see the half-tone dots.

I decided to try printing out a plan to a larger scale than it was printed. Using the supplied directions, I chose a locomotive drawing, saved it as a PDF, then opened it in Adobe Acrobat. I hit the print button, then scaled the drawing up to the size I wanted. It was, at that point, too large for the page, so I chose the "tile" option so that it would print on multiple pages that I could then stick together. It worked like a charm, producing a detailed drawing precisely to the scale I had chosen.

This DVD set is a wonderful resource if you're a *Gazette* fan or just a narrow-gauge fan. The magazines are fun to skim through. All of the information is there (including ads), you can print out whatever you might like a hard copy of, and the DVDs takes up little physical space. Highly recommended. —**M. Horovitz**



VITAL STATISTICS

Narrow Gauge and Short Line Gazette: 50-year collection, 1964-2014 DVD

**Hayden Consulting
7 South Hijo de Dios
Santa Fe NM 87508**

**Price: \$139.95 + s&h
Website: www.bobhayden.com**

4-Wheel RR Platform Wagon

Modelers with passenger station platforms need Platform Wagons! They give a long way toward locating up the location at passenger station platforms which creates a lot of interest for visitors to your model RR layout.

From the inception of passenger trains, people on long trips did not travel lightly. They had large trunks holding their clothing and personal possessions. Over 100 years ago, these people made up a large proportion of the traveling public with their cases of samples and their great suit cases of clothing for their long, arduous trips from town to town.

Baggage on Platform Wagons included clothing cases, boxes, suit cases, hat boxes, sample bags, steamer trunks, milk cans, mail sacks, express parcels, bags of miscellaneous stuff and occasionally a large animal (sometimes).

Passenger baggage was delivered from passenger baggage cars to Platform Wagons in advance of the arrival of the train to prevent delaying departure. A baggage agent would load Platform Wagons of checked baggage and trunks from the baggage room to the platform waiting at the spot where the doors of the baggage car would open and set out railroad baggage or trunks containing the lifting of heavy items. (There was no way to store large trunks and suitcases in the space provided in passenger coaches and sleeping cars.) To meet this need, Platform Wagons were manufactured for a station platform so the wagon deck was the same height as the baggage car floor.

Handling checked baggage was a function of the railroad, with express agencies being forbidden from handling passenger baggage.

After the departure of a train from the station, several of these Platform Wagons would have been filled with packages and sacks awaiting from the local area. These cases and parcels were brought to the baggage room or express office. Express packages had to be tagged in the Express Wagons by telegrams for local distribution. Luggage and trunks were in the baggage room to be handled over to passengers, while mail always had to be picked up directly by U.S. postal employees in Delivery Wagons.

Colors depended on the railroad or express company. Railroads in general used Pullman green or a similar industrial green color. Trunks were varnished in their dark green color bags and made riding on baggage cases:

- American Express - green body and red running gear
- CNW - green body and red or yellow running gear
- FR - green body and red running gear
- REA - dark blue body and red running gear and underbody iron
- Wells Fargo - blue body and red running gear



Various other carts were used on train platforms, which included the common hand truck which was often used by the Post Office for transporting mail.

Platform Wagons were identified with code numbers either painted on or engraved on metal plates. On REA-owned wagons and many railroads, often had an engraved number plate mounted to a bracket on the end of the wagon. While the sides of a Platform Wagon were too small to paint the Railway Express Agency (or railroad) name, a wooden fascia (decorative strip) would sometimes be hung below the deck or mounted along the sides of the frame with the name on it. Some of these wagons had long curved signs on the sides. The RAILWAY EXPRESS AGENCY was lettered in ornate gold with dark and light red shadows, standing on a red green background.

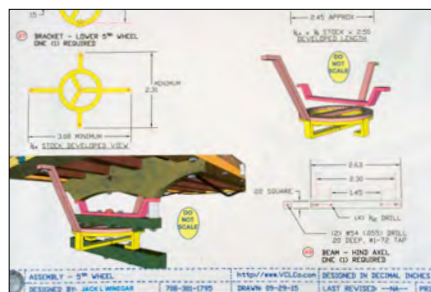
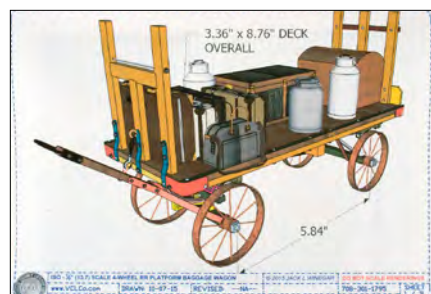
Basically Platform Wagons had a fixed axle holding the wheels with a rigid suspension. At the front and there was a more elaborate metal support for the front wheels of the circular 19" Wheel Running Gear bearing plates that rotated permitting the wagon to be steered by means of a long tongue with a handle at the rear end. Above the deck the axle nut from a couple of wooden pieces kept packages from falling off the ends, to stamped-metal cotter-pins drove into the axle nut when the wagon was being moved.

Platform Wagons could weigh as much as several hundred pounds when empty. While these wagons had four wheels, a platform and a steering tongue to lead it, there were some interesting variations.

Double-Ended Platform Wagons

There was a variation of the four-wheeled platform wagon having a long tongue draw bar at each end. A look at the undercarriage showed that the Running Gear at both ends could run. Only one draw bar would be extended at a time for hauling, and switching to release a lock for the moving with a brake. This clever variation on the basic platform wagon made it unnecessary to turn the wagon to move it in the opposite direction. This was a great convenience to the operator when trying to move one of these wagons on a narrow platform. As platforms are not always very level, a loaded wagon could tip over when turned, especially when trying to make a tight 180° turn when moving the wagon to the station area for unloading.

Every type of depot, be it Express, Freight or Passenger Depot needs a Platform Wagon!



Build a baggage wagon

Vilas County Lumber Company offers many plan sets, including structures, bridges, and wagons, primarily in 1:24 scale. Our two review samples are plan sets for the same station-platform wagon, one in 1:24 scale and the other in 1:13.7 (7/8"). The only real difference in the two plan sets is that the 1:13.7 plans (naturally) are larger and require more sheets. The dimensions

provided on each set are correct for the scale of those plans (i.e., not prototype dimensions but scaled-down ones).

Each plan set is prefaced by three smaller sheets. These depict the finished wagon, followed by a description of full-size wagons and their function on the station platform. Colors and variations of the vehicles are discussed and there are photos of three different prototype wagons (there was a lot of variation in the prototype station wagons).

The actual plans begin with perspective drawings of different views of the wagon. Each part is clearly numbered. These numbers can be cross-referenced with the individual part drawings and also the parts list. The latter gives the part number; name of the part; name of a

manufacturer (either of a part or a material); the material; quantity required; and notes. The "Material" column in the list, unfortunately, does not list the actual material in most cases (i.e., wood, metal, etc.); instead, it lists the manufacturer's part number. So, if you are building the model from raw stock, you'll have to figure out the appropriate material for various parts from the drawings or the photos, if it isn't obvious.

Aside from that quibble, I found the drawings to be excellent. Construction notes were often included for assemblies. If a standard 2-D drawing is not sufficient to explain an assembly, a 3-D drawing is provided. I had no difficulty at all in following the plans. For the novice, some knowledge of drafting conventions might be beneficial.

The drawings cover the construction of every part. The model goes together just like the prototype. If you're working in 1/2" scale (or even the larger scale), some modeling skill and experience will be required to build to the plans. However, there are various ways the project could be simplified.

I'm pleased to see these plan sets. Not only do they provide a challenging modeling project, they educate the builder as to how the full-size wagon was manufactured. I look forward to seeing more of these. —**M. Horovitz**

VITAL STATISTICS

Platform-wagon plan sets in 1:24 and 1:13.7 scales

Vilas County Lumber Company

12306 Lakeview Trail

Homer Glen IL 60491

Prices: 1:24, \$12; 1:13.7, \$14

Website: www.VCLCo.com

Comprehensive plan set for the construction of a station-platform baggage wagon; six 9 1/2" x 13" pages and seven (1:24) or nine (1:13.7) 13" x 19" pages; spiral bound; printed in color; computer-generated drawings; fraction/decimal/millimeter chart included; decimal/inch conversion chart for four model scales included; scale conversion to other scales chart included

PROS and CONS

PROS: History, description, and prototype photos included; all parts numbered and cross referenced; easy-to-understand drawings; dimensions are actual for the scale of the plans

CONS: Parts' materials not always clear; if you want to lay the sheets side by side, you'll have to remove them from the spiral binding

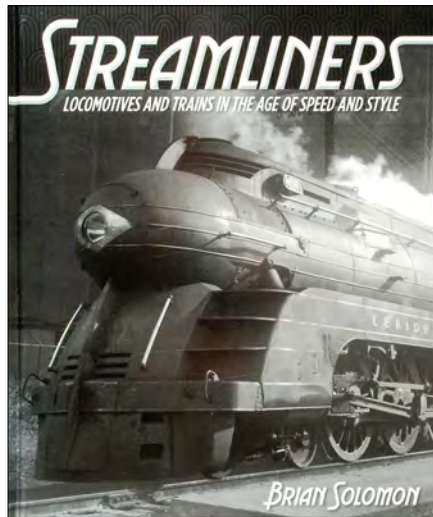
Beautiful trains

This book, *Streamliners*, is sure to interest enthusiasts of the streamlined era of American railroading. It's a beautiful volume containing over 200 color and black-and-white photographs of streamlined steam and diesel locomotives and their trains.

However, this is not just another coffee-table offering. Author Brian Solomon, in his usual clear and lucid way, explores the beginnings of streamlining (which actually originated around aerodynamic attempts to improve fuel efficiency), through its history, until its ultimate demise in the 1960s. The book does not cover the modern resurgence of interest in streamlining and high-speed trains.

The first chapter touches on aerodynamic experiments, with extensive information on the famous McKeen cars. This is followed by a discussion of new materials and thinking. Railroads wanted to present a new image to the world. Streamlining was applied to all forms of transportation, including railroads, road transport, aircraft, and boats. American efforts were influenced by work being done overseas, particularly in Germany. This period was especially personified by lightweight passenger trains like Union Pacific's M10000 and Burlington's Zephyr, which created huge public interest.

In an effort to keep up, railroads that were heavily invested in steam started dressing their locomotives in streamlined shrouds, often hiring top industrial designers to do the designs. All of this led to the development of the modern diesel locomotive in the late 1930s, when Gener-



al Motors' Electro-Motive Division (EMD), Alco, and other manufacturers jumped on the bandwagon.

Streamliners discusses the attempts by different railroads to upgrade their images via streamlining. Some of these include the SP, Santa Fe, New Haven, Milwaukee Road, Pennsylvania, New York Central, and others. Locomotive designs sometimes came from the same companies that were designing automobiles of the time. Also discussed are the actual designers of many of the classic-era streamliners, most of whose names won't be known to the average enthusiast.

After WWII streamlined trains went through a brief renaissance, with companies like Baldwin and Fairbanks-Morse entering the field. However, it was to be a brief burst of glory, despite innovations like the Talgo train, GM's Aerotrain, and others of the 1950s and '60s. Passenger-hauling railroads were on the way out. The book finishes on an up note, with a chapter on the preservation movement in this country and all of the streamlined trains that still live in museums and in "heritage" fleets around the US.

The writing is well researched, interesting, and the style is engaging. Photo reproduction is top notch and the book is printed on heavy matte paper. If you like streamliners (and who doesn't?), this book will occupy an important place on your shelf. —M. Horovitz

Replicating stone



In the past few years, *Garden Railways* has run a few articles on using sheets of cut-stone tiles for retaining walls, small stations, etc. These tiles were available from Home Depot and Lowe's, and were pretty cool. I built a small depot out of them. Each cut stone in the tile measured about $\frac{3}{8}$ " x $\frac{7}{8}$ ", making them suitable for all the common garden scales. Unfortunately, the stores discontinued the tiles.

Reindeer Pass had some of these tiles on hand and decided that, if the stores weren't going to sell the real things anymore, they would make castings of the ones they had and sell those. The castings are made of polyurethane, so they're lightweight and waterproof. They come in gray primer so they can be painted. Detail is sharp, giving a realistic appearance to the "stone." Sheets measure 12" x 12", with a depth of around $\frac{1}{2}$ ". The sides of each sheet interlock, so you could build a long

BOOK REVIEW

Streamliners: Locomotives and trains in the age of speed and style
by Brian Solomon
Voyageur Press
Quarto Publishing Group
400 First Ave. North, Suite 400
Minneapolis MN 44501
208 pages, 8 $\frac{3}{4}$ " x 11 $\frac{1}{4}$ ", hardbound,
115 color & 81 b/w photos

VITAL STATISTICS

Stone wall tiles
Reindeer Pass
3665 NW 98th Ave
Polk City IA 50226
Price: \$14.95
Website: www.reindeerpass.com

Cast polyurethane cut-stone-wall interlocking tile sheet. Dimensions: 12" x 12" x $\frac{1}{2}$ "

wall and the seams between the sheets would not be noticeable. You may have to do a bit of filing to get a tight fit, but nothing major.

Having worked with the original stone-tile sheets, I can say without hesitation that I actually like these plastic sheets a lot better for building purposes. They're infinitely easier to cut, which is a key consideration for building structures. If you wanted to make a wall for a station out of these sheets, you'd need only draw the window and door openings on the sheets,

then carefully cut them out with a scroll saw or similar. If you needed to join two sheets somewhere in the middle of one sheet, you'd just have to carefully cut the stones to match the joint and you're ready to go.

Truth be told, if it weren't for the fact that I like the way the Turkish Veronica on my railroad has overtaken my stone station, making it look like an old stone ruin, I'd pull the thing out and rebuild it with these sheets (I may still). Instead, I think I'm going to look for a way to

incorporate these sheets as I rebuild the tannery on my railroad. Stone structures were common in rural Pennsylvania, and I think the ease of working with these sheets will make building some really cool stone factories a pleasure. —K. Strong

PROS and CONS

PROS: Lightweight; waterproof; crisp details

CONS: None

Quickly add an industry to your line

Throughout most of railroading history, railroads had what were called "team tracks." These were short spurs, typically near depots or industrial areas, where the railroad would spot freight cars for local merchants to load and unload goods. You might find a small ramp next to these tracks to make it easier to manage the freight. Reindeer Pass's freight ramp is designed to be placed on a short spur to provide an "instant industry" for your railroad to serve.

This small freight ramp measures 10¾" long by 3⅜" wide. It stands 1¾" tall when set flat on the ground but can be sunk into the ballast to match the height of freight cars on the track. The platform is made from Gator Board, which is foam laminated between styrene outer sheets. On the top surface of the platform the company has laminated Precision Products' simulated wood planking, vacuum-formed sheets to give the platform the



look of a wood deck. The ramp comes primed in gray, which is a good base upon which to paint it. (I'd use a mix of brown and tan acrylics.)

I have a barn on my railroad that's built of this same material, which has been outside for five or so years, so I have little doubt that this freight ramp will be able to stand up to the elements on a long-term basis. It is sturdily built but, being

foam and styrene, is fairly light in weight. If you intend to use this freight platform in a permanent installation, I suggest gluing wire "spikes" to the legs, which could then be pressed into the ground. Overall, this is a quick and easy way to add an industry and a focal point to your line.

—K. Strong

VITAL STATISTICS

Small freight platform

Reindeer Pass

3665 NW 98th Ave

Polk City IA 50226

Price: \$9.95

Website: www.reindeerpass.com

Styrene freight ramp; ready to paint. Dimensions: 10¾" x 3⅜" x 1¾"

PROS and CONS

PROS: Sturdy construction, suitable for all scales

CONS: None

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The 30-gallon tunnel

by Dennis Bass | Snellville, Georgia | PHOTOS BY THE AUTHOR

Having enjoyed running my large-scale train around the Christmas tree and on the patio, I was ready to run it in the garden year round. The layout of my Dogwood Branch, named for the tree it was under, was a shortline that was going to look too exposed. What it needed was some suspense—a tunnel should do the trick! Looking for an idea that was both quick to implement and inexpensive, I thought of using plastic storage containers for the structure. So off to my local Big Lots store I went, where I purchased three perfect 10-gallon storage containers.

I carefully cut a rectangular hole in both ends of each one, keeping the top of the container's rim intact to maintain the stability of the container's shape (**photo 1**). Next, I painted the inside of all three of them with a texture spray paint, which would be visible once in place.

Using duct tape, I then fastened the three containers together and began setting the tunnel into a base of Crush-n-Run paver base (**photo 2**), already tamped in place, on which the track would be laid. Then I started covering the tunnel with landscaping rocks and soil, which finished the basic installation. The track was laid and a few test runs were made for fun.

To make a more prototypical tunnel entrance, I purchased two prefab stone portals. To attach the portals, I used duct tape and stiff paper to create a rough mold. I then used Great Stuff foam sealant from Home Depot to fill the gaps. Note the plastic shopping bag protecting the track (**photo 3**), as this stuff is quite tacky when it comes out of the can. The Great Stuff expands and quickly dries hard, allowing the landscaping to be completed in time for me to run my trains the same evening!

Pros

- Entire railway was completed in a weekend; tunnel is still in use five years later without major problems.



A train departs the author's tunnel, made from storage containers.

- Tunnel is the right length for easy removal of debris inside.
- Good place to park the train during an unexpected shower.
- Grandkids love the tunnel (so does Grandpa!).

Cons

- Heavy rain can wash landscaping off the outside, exposing the blue wall of the container. Next time I'll paint the outside as well.
- The track curves, while emerging from the tunnel, which limits running to shorter engines and cars. I will be placing an additional 12" straight section to allow longer engines and rolling stock. ▴

Materials

Ten-gallon plastic storage containers (3)
19¼" x 14" x 13½"
Duct tape
Razor knife
Texture spray paint
Prefab stone or wood tunnel portals (2)
Stiff paper (file-folder strength)
Great Stuff spray foam
Plastic shopping bag
Bag of garden soil, small plants, and landscaping rocks
Misc. garden tools



1. The ends were cut out of each container and the insides sprayed with texture paint.



2. Duct tape fastened the containers into a single unit, which was bedded into the ballast.



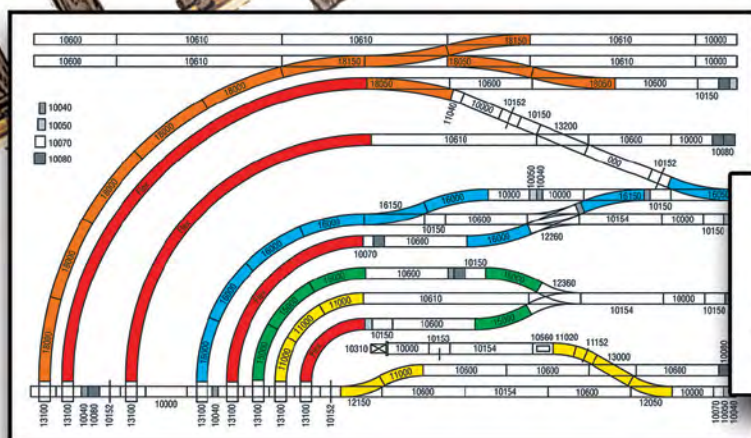
3. Dirt and rocks, piled over the containers, formed the exterior. Commercial tunnel portals were attached to both ends.

Have you done a garden-railway-related project that can be described in a single page? Send us 300-600 words with up to three photos and/or illustrations. E-mail mhorovitz@gardenrailways.com with "One-page project" in the subject line.

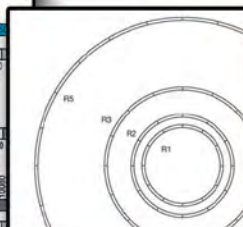
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The exotic
DR BR 132
Diesel Loco

This "fan fave"
nicknamed
'Ludmilla' is
ready to really
haul on your
G-Scale layout!

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PIKO Delivers!

2016 New Items — Coast-to-Coast and already arriving...

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38874 NYC "Early Bird" Steel Boxcar



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